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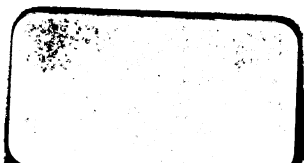
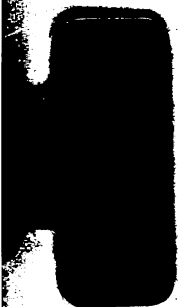
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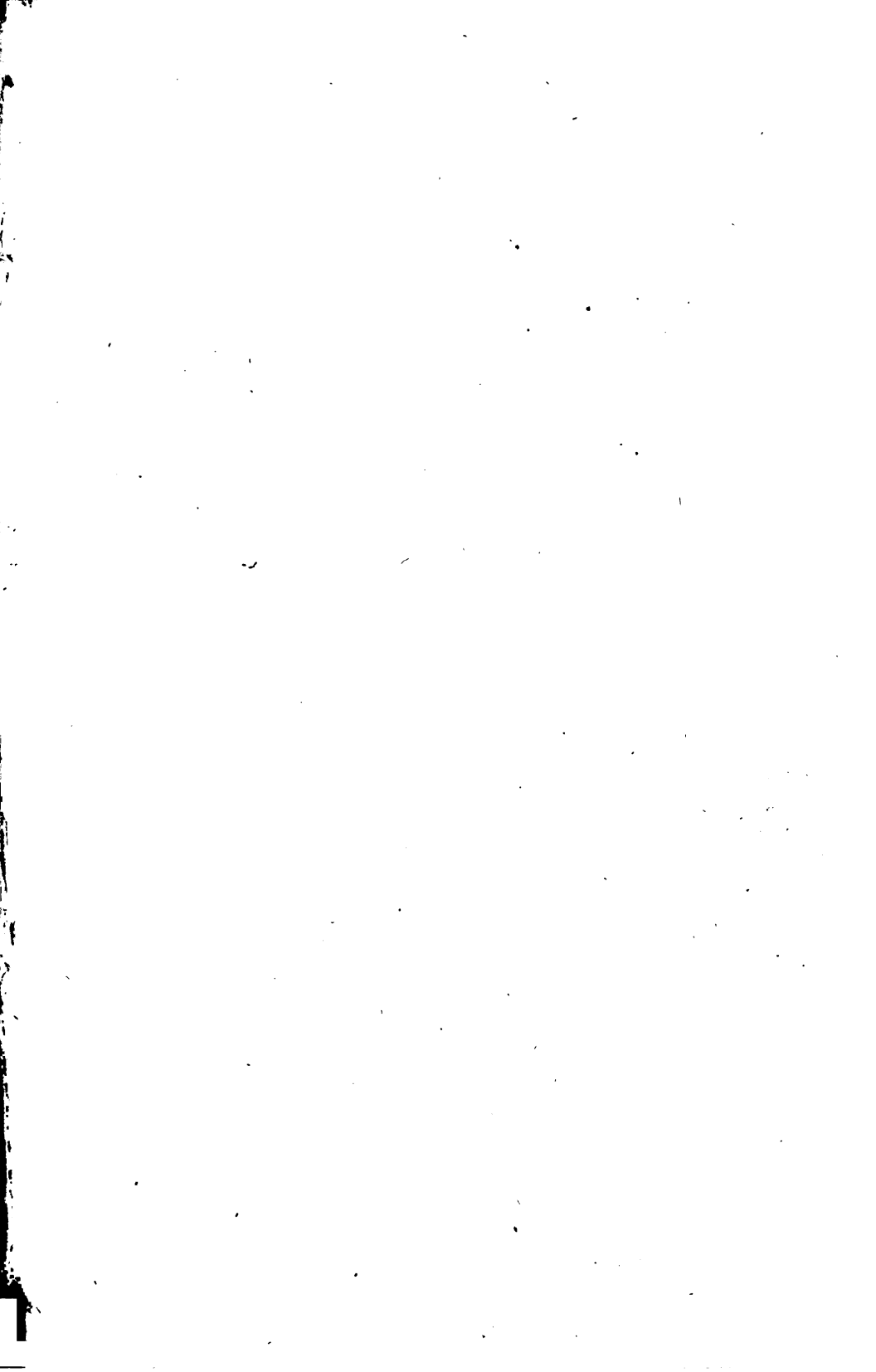


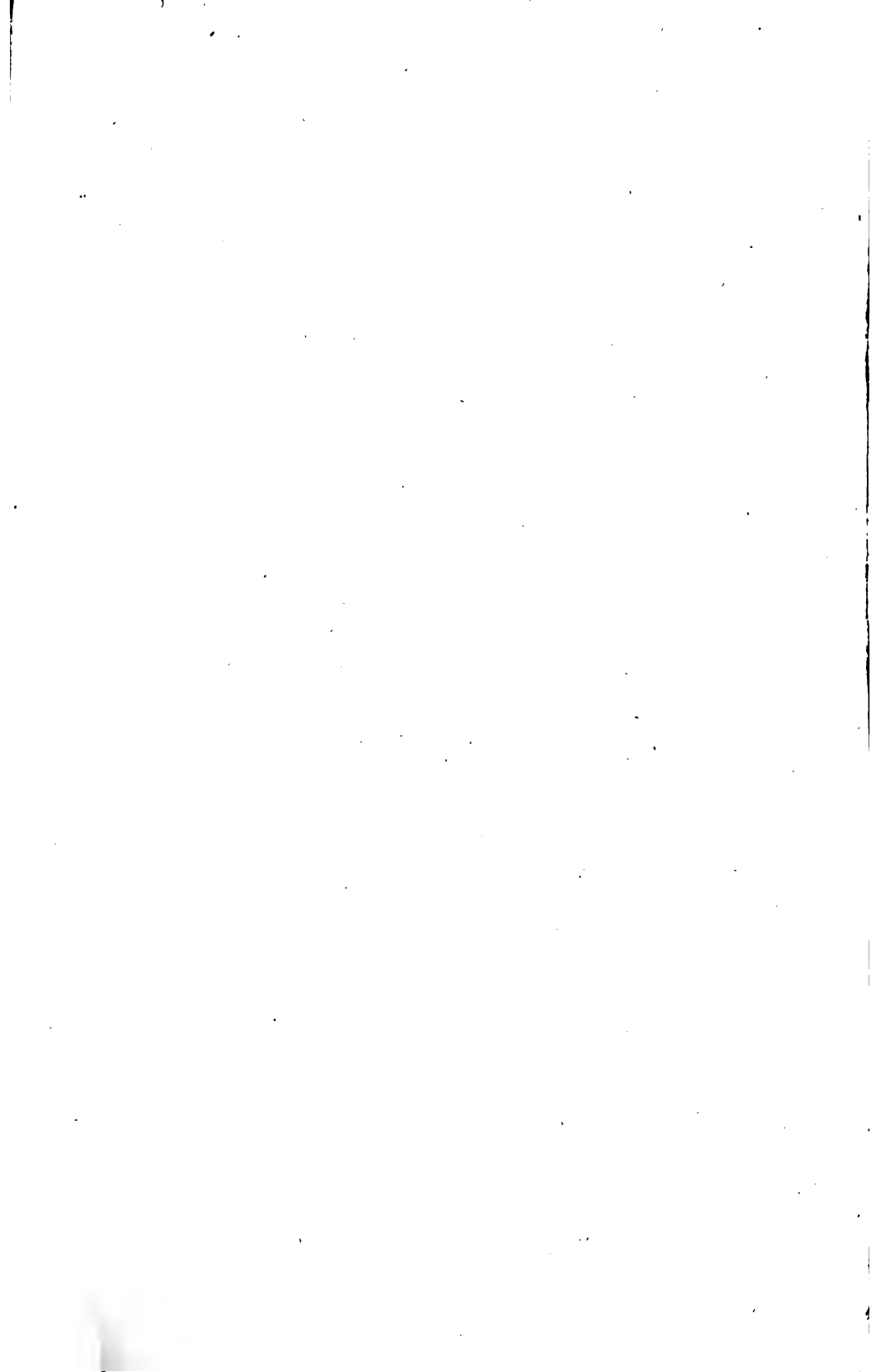
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ON THE
INHALATION OF IODINE AND CONIUM
IN
TUBERCULAR PHTHISIS,
&c. &c.

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CASES
ILLUSTRATING AND CONFIRMING
THE REMEDIAL POWER OF THE INHALATION
OF
IODINE AND CONIUM
IN
TUBERCULAR PHTHISIS
AND
VARIOUS DISORDERED STATES OF THE LUNGS AND
AIR-PASSAGES.

BY SIR CHARLES SCUDAMORE, M.D. F.R.S.

HONORARY DOCTOR OF MEDICINE OF THE UNIVERSITY
OF DUBLIN, ETC. ETC.

THE SECOND EDITION,
CONSIDERABLY ALTERED AND ENLARGED.

A desperatione ad spem ; ab exitio ad salutem.—CICERO.

*Est enim tarda illa quidem medicina, sed tamen magna, quam affert
longintiquas et dies.—IBID.*

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1834.

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TO
THE KING.

SIRE,

I AM deeply impressed with your Majesty's gracious condescension in permitting me to lay before your Majesty the following pages, on a subject of the very highest interest.

Of any endeavour to afford relief in one of the most prevailing and fatal diseases which afflict humanity, I was confident of your Majesty's approbation; and to a MONARCH whose sympathies are keenly alive to every undertaking involving the public welfare, I felt a peculiar propriety in wishing to dedicate a clear and faithful exposition of the means which I have pursued in the treatment of Consumption, with a measure of success, I believe, hitherto unattained.

With sentiments, SIRE, of the profoundest respect, I subscribe myself

Your MAJESTY's most dutiful

and devoted subject and servant,

CHARLES SCUDAMORE.

P R E F A C E.

THREE years have elapsed since the first edition of this work was published. In that interval I have had sufficient opportunity of ascertaining the value of the practice which I then recommended.

I am now enabled, with perfect truth, and not less satisfaction, to assert, that the success which has attended the treatment of numerous cases of tubercular Phthisis under my care has gone far beyond my expectations. In saying this, I feel in proportion anxious to enter my protest against all extravagant and false notions, respecting the curative power of this or any other mode of practice, in this disease. There are, and I fear must ever be, cases of a nature so severe and complicated, and of a progress so rapid, as to preclude any reasonable hope of permanent relief. Possibly also a cer-

tain stage of the disease places it beyond the reach of art. I desire, therefore, to awaken the friends of the consumptive to the earliest dawnings of the disease, and to urge upon them the vital importance of employing efficient means of treatment, at a time when they can be used with a far greater probability of success than at any later period.

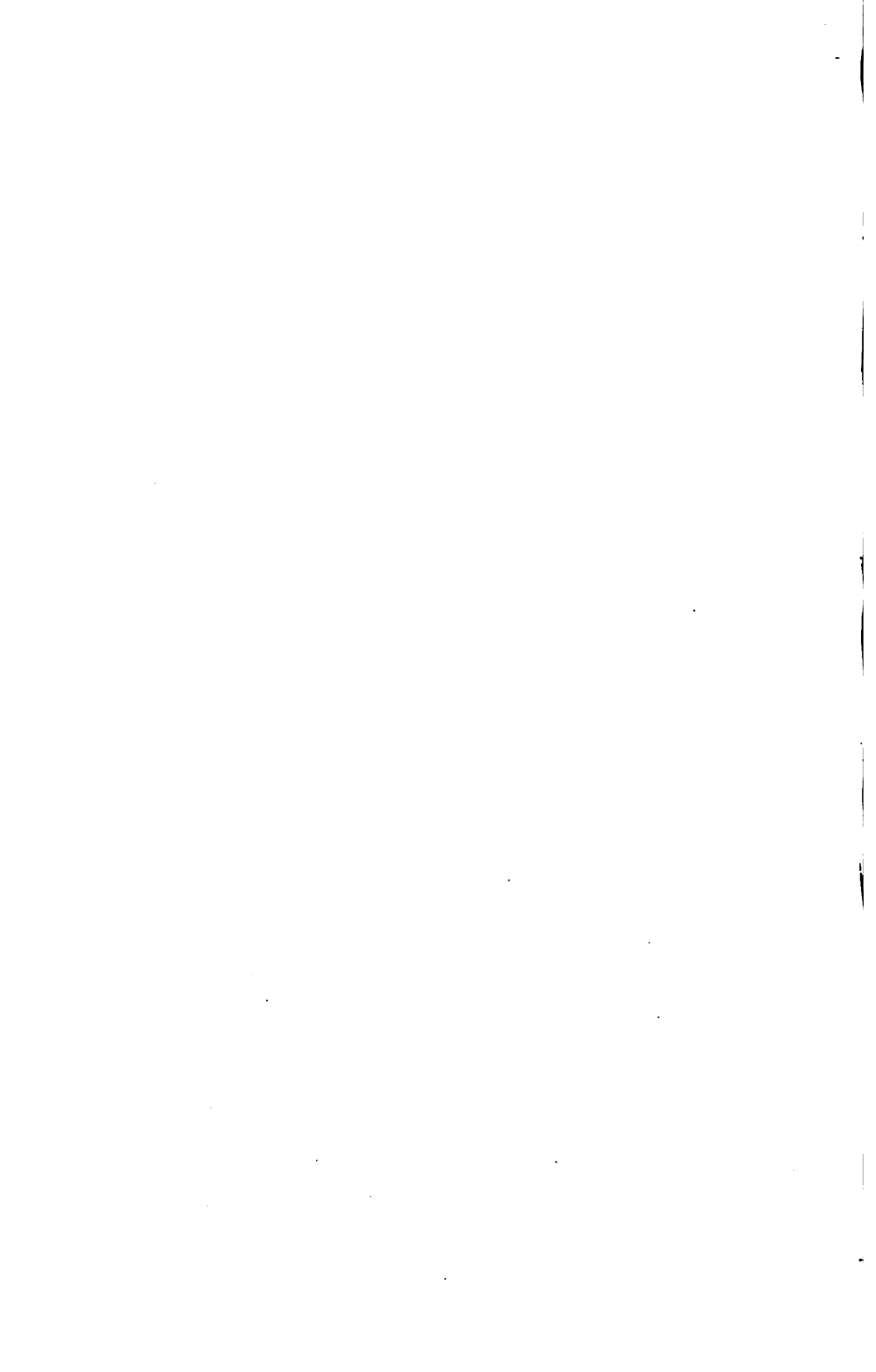
With my recorded conviction that the use of iodine by inhalation is productive of results highly and permanently beneficial—and that the constitution which prohibits its continuance is peculiar, and a rare exception to ordinary experience—I must express my earnest hope that the subject may receive, from the Profession at large, such a full and dispassionate attention as is suited to its importance.

The present volume contains a fuller and more perspicuous statement of the method to be pursued, which my further experience has enabled me to offer ; with such details as will, I trust, prove satisfactory to the medical reader.

It is not on selfish grounds that I advocate

the practice. What concerns my reputation, or advantage, is personal and transient, and of little moment : what relates to science and to the interests of mankind is for all ages, and of inestimable importance.

Wimpole Street, Dec. 14, 1833.



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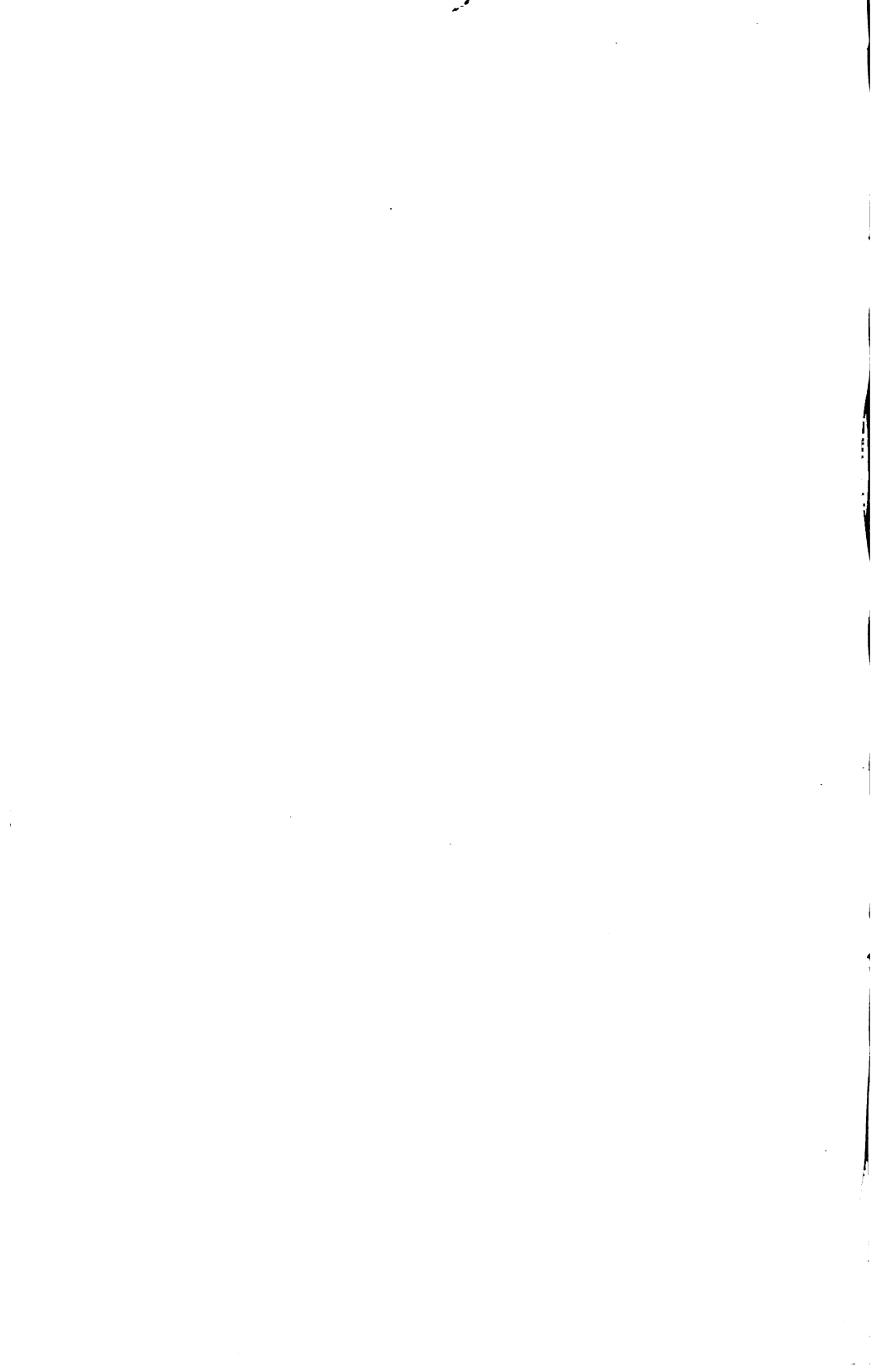
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PRELIMINARY OBSERVATIONS.

THE frequency of pulmonary consumption in our variable climate, and its melancholy fatality, are truths too familiarly known and severely felt throughout society, to require much historical proof. In the Medical Gazette for January 12, 1833, Dr. Gregory, in drawing up a report of the comparative mortality of twenty of the most destructive disorders in London, during a period of four years, gives the following statement:—For the year 1829, the total number 14931, and the proportion from consumption 5251; for 1830, the relative numbers 13583, 4704; for 1831, 17560, 4807; and for 1832, 19285*, 4499. Authors have

* In this year the deaths from the new disease, Cholera, are computed at 3200.

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usually stated the deaths from consumption as forming a fourth of the general mortality. Without asserting that such calculations are accurate, we must consider it an admitted fact, that this disease is the most universally fatal of any prevailing in Europe.

No apology, therefore, can be required for the proposal of any new plan of treatment, which may carry with it a reasonable chance of diminishing this severe scourge of the human race. Such was the sentiment which I expressed when I took up my pen on the subject of inhalation three years ago.

In publishing a second edition of my cases illustrating the influence of inhalation as a mode of treatment, I have sincere satisfaction in being enabled to confirm the favorable opinion which I before expressed ; and I now take occasion to explain my views on the subject, with the greatest distinctness of which I am capable.

The application of medicated vapors to the lungs has been a practice so long known,

that the principle of the treatment claims neither the charm of novelty, nor the praise of invention; but the opportunity still remains of making great improvement in the means to be used, and in the mode of applying them. It constitutes a new method of treatment, to administer by inhalation those medicinal agents which the science of modern pharmaceutical chemistry has brought to light; and it is my object, in the following pages, to shew that they are capable of exerting a very important and beneficial influence in certain states of pulmonary and bronchial disease.

It would be matter of difficult research to ascertain the period at which the attempt was first made to relieve the disordered condition of the lungs and the air passages by means of inhalation. We are told that Galen prescribed the fumes of arsenic or orpiment. Dr. Beddoes, in the year 1793, published some observations on pulmonary consumption, in which he pointed out the injury that had been produced in some consumptive cases treated

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by inhalation of oxygen, which had served to aggravate greatly the cough and hectic fever. He argued that benefit might be expected to arise from reversing this treatment, and directing the patient to breathe a mixture of atmospheric air with hydrogen, or with azote. He quotes the practice of Dr. Percival and Dr. Withering, in having used with advantage, although not with complete success, the inhalation of carbonic acid gas, procured from an effervescing mixture of chalk and vinegar, or carbonate of potash and vinegar.

In 1823, Sir Alexander Crichton published his observations on the treatment and cure of several varieties of pulmonary consumption, and on the effects of vapor of boiling tar in that disease.

Within the last few years, the inhalation of chlorine gas has been recommended by some French practitioners as a remedy in phthisis pulmonalis.

With regard to the gases employed and mentioned by Dr. Beddoes, or oxygen, or the

nitrous oxide, I have never made trial of them, and therefore cannot offer my testimony of their value as medicinal agents in pulmonary, or other kinds of disease. Various difficulties would attend the employment of the gases in general practice; much chemical dexterity being required in preparing them; the doses to be administered not of easy arrangement; and their action on the system being uncertain, and probably capricious. The nitrous oxide, in judicious hands, might probably, in some cases of disease, exert a beneficial influence; particularly in certain states of depression of the nervous energy.

I made early trials of the tar vapor recommended by Sir A. Crichton; but without satisfactory results. I must observe, however, that my experience with this remedy was not sufficient to justify me in pronouncing any positive opinion of its merits.

Upwards of five years have now elapsed since I first directed my attention to the effects of various medicines which I employed, in ad-

6 THE SUBJECT OF INHALING TREATMENT.

mixture with hot water, in the way of inhalation; and, especially, iodine and hemlock; using for the purpose a glass apparatus, well fitted in its construction for the exhibition of the remedy in the form of vapor. After an interval of two years I published the first edition of the present work. Some time before it had left the press, Dr. Murray, of Belfast, in a dissertation on other subjects, introduced an account of the useful power of iodine in phthisis pulmonalis, administered by diffusion with the vapor of hot water in the general atmosphere of the apartment; and not by direct inhalation.

The inhalation of chlorine, as a remedy in consumption, has had many advocates. So early as in 1817, M. Gannal informs us that, being attached to a manufactory of printed calicoes at St. Denis, he had occasion to observe that those workmen who happened to be affected with phthisical symptoms experienced relief, and many quickly recovered their health, from being exposed to the inhalation of the

chlorine disengaged in the various processes. He communicated the fact to the late celebrated Laennec, who, in the year 1823, at the Hospital of La Charité, made some trials with a solution of chloride of lime, sprinkled about the room of the sick, and also sprinkled on some sea weed with which the room was previously covered. This distinguished physician further made an attempt, in a small ward of the Clinical Hospital, to establish an artificial marine atmosphere, by means of fresh sea weed. The results which he perceived from both of these methods were, to a certain extent, satisfactory ; but not so decisive as to induce him to follow up the practice.

Amongst ancient and modern authors we read of different kinds of inhalations being used, in addition to what I have mentioned ; as the volatile parts of different herbs, separately and in combination ; of frankincense, turpentine, storax, æther, vinegar, and other substances which might be mentioned. The most simple vapor in use is that of hot water, .

8 THE SUBJECT OF INHALING TREATMENT.

as a relaxant ; or, upon the idea of obtaining more emollient properties, a preference is sometimes given to the decoction of marsh-mallows. Thus the rationality of applying some remedial agent in a direct manner to the seat of diseased action, in certain conditions of pulmonary and bronchial disease, has been admitted and acted upon for many past ages.

Iodine, mixed with hemlock, constitutes the principal remedy which I have employed.

As, by mixing the tincture of iodine with water, the iodine itself separates into flakes which become precipitated, and as 7000 parts of water are required for its solution, I found it expedient to form a preparation which should be uniform, and preserve its transparency when united with water in any proportions. This admixture is effected by adding together iodine, hydriodate of potash, distilled water, and alcohol. The following is the formula which I prefer on commencing with the treatment of iodine inhalation :

R Iodin. gr. v.

Potassæ Hydriodat. gr. iii.

Aquæ distillat. ℥v.

Alcoholis ℥ii.

Tinct. conii* ℥vi.—M. fiat mistura.

I found it expedient to use the smallest proportion of the hydriodate which would serve the purpose of rendering the iodine soluble, and not enough to engage much of the iodine itself. The addition of the tincture of conium is important; as, together with its distinct operation as a sedative, it softens the action of the iodine; and this property of diminishing the sharpness of the iodine, during the process of inhaling, is more effectually produced by the previous combination of all the ingredients; but the mixture should not be long kept, as in that case the iodine would undergo considerable change, and its power become too much reduced. Also when it is desired to have the iodine solution in the most active state, the conium, if mixed with it at all, should be added only at the time of using the inhalation.

* A saturated tincture.

10 THE SUBJECT OF INHALING TREATMENT.

The following are the other medicinal substances which I have used for the purposes of inhalation :

A saturated solution of pure chlorine gas in distilled water.

A saturated tincture of stramonium, prepared from the dried leaves and stalks.

A saturated tincture of belladonna, prepared from the dried leaves.

A saturated tincture of the lobelia inflata.

A spirituous tincture of ipecacuanha, prepared from the roots.

A saturated tincture of digitalis.

Hydrocyanic acid, of the specific gravity .992.

The pure sulphuric æther.

In the history of my treatment I shall have occasion to describe the manner in which I have employed these medicines.

Before I engage in the narrative of my cases, I think it necessary to enter at some length into the consideration of the nature of the sputa, or expectorated matters, which are

derived from the morbid states of the air-passages and lungs.

It is doubtless of great importance that we should be correctly acquainted with the nature of the different kinds of expectoration, and the indications which they afford. Viewed as a symptom, the attentive examination of the sputa is very highly instructive; as other excretions—for example, the urinary and alvine—afford us great information of the functional condition of the respective organs; but I believe that erroneous conclusions are often drawn from the appearances of what is expectorated, in consequence of some of the popular false statements on the subject still receiving credence; or, because the facts which have been brought to light may not have been made sufficiently known. Further, I do believe that practitioners run into extremes in regard to this pathological point; for, while some decide too conclusively from a view of the sputa, others place little or no value on these signs.

The various kinds of sputa first deserve ob-

14 DIFFERENT KINDS OF EXPECTORATION.

times mixed with creamy, pus-like matter, or with curdy fluid, of more or less offensive odor, less abundant than the preceding kind, and expectorated with much more difficulty. When in the worst form, this expectoration is strongly indicative of softened tubercles, or of membranous ulceration.

6. Pus suddenly discharged from vomicae (large tubercles suddenly softened, and their contents poured forth at once), or, from an abscess of the lungs resulting from inflammation, and unconnected with tubercles.

7. Creamy, yellow sputum, frequently mixed with blood, accompanied with an abundance of frothy saliva, attended with so much irritation of the larynx or trachea as to indicate the probability of actual ulceration of the membrane, or a condition approaching to it; cough urgent.

8. I have lastly to notice an excretion of blood, more or less mixed with consistent yellowish matter, excreted without cough, occasionally of florid blood, frothy from its mixture

with saliva, sweetish in taste, without smell, evidently proceeding from the mucous membrane of the larynx or trachea.

Great anxiety is usually entertained as to whether the matter expectorated in pulmonary disease is simply mucous, or containing also a larger or smaller proportion of pus. The popular notion is, that, when the sputum sinks in water, it is purulent, and vice versâ. This is wholly an error. It is true that pure pus instantly sinks in water ; but mucus also precipitates with equal certainty, when divested of the air-bubbles with which the expectoration is always more or less mixed. No such importance, therefore, need be attached to the swimming or sinking of the expectoration.

It was stated by the late Dr. Charles Darwin, that the three following criteria distinguish pus from mucus. " 1. Sulphuric acid dissolves it. When the solution is diluted, the pus precipitates ; but mucus, treated in the same manner, swims. 2. Pus is diffusible through diluted sulphuric acid, and through

16 DISTINCTIONS BETWEEN PUS AND MUCUS.

water, but mucus is not. 3. Alkaline leys dissolve pus ; water precipitates pus thus dissolved, but not mucus."

1. I found that sulphuric acid dissolved both pus and mucus ; the latter the least readily ; but, in contradiction to the results just quoted, it appeared that, on dilution with water, the liquor in which the mucus was contained afforded an abundant precipitation, although not so immediately as the mixture containing pus.

2. The second experiment is correctly stated, but the result is not of the supposed value in the examination of a muco-purulent expectoration ; for, in all instances of chronic pulmonary disease, however aggravated, as I shall have occasion to shew, the general secretion is not a mixture of pus and mucus in varying proportions ; but an altered secretion of the mucous bronchial membrane, changed from its simply mucous character, and making more or less an approach to that of a purulent nature.

3. I find these results not to agree with my experiments. Neither is the solution of pus or mucus, by means of pure liquor potassæ, disturbed by the addition of water, so as to cause a precipitation.

Mr. Hunter observed that the muriate of ammonia coagulated pus and not mucus, and hence appeared to be satisfied with the criterion. Dr. Pearson pointed out that it was not an example of coagulation, but of inspissation; the alkali attracting the water from the pus, the effect of the seeming coagulation disappearing on the addition of water.

I found that a saturated solution of muriate of ammonia acted very similarly on pus, and on mucus expectorated in bronchitis, producing with each a glairy fluid, which, on being heated, gave a curdy deposit. With pus, certainly the mixture was more dense and more readily produced; but, by means of a brisk agitation, the mucous sputum became almost dissolved, and the mixed fluid assumed the consistence of thick mucilage. Even between pus and mucus

18 EXPERIMENTS WITH PUS AND MUCUS.

this experiment does not furnish a characteristic difference of result ; and I pronounce it to be of no value in the examination of a mucopurulent sputum. The difference of effect was not sufficiently remarkable. Grasmeyer has proposed the following method, which he considers as complete. " Triturate the substance to be tried with an equal quantity of warm water ; then add to it an equal portion of a saturated solution of carbonate of potash, and set the mixture aside. If it contain pus, a transparent jelly subsides in a few hours ; but this does not happen if mucus only be present." Operating upon pure pus, I found the jelly-like coagulum produced in a few minutes ; while, with mucous expectoration, a mucilaginous kind of inspissation only resulted.

The differences between pure pus, and mucus secreted from the bronchial membrane, are too remarkable and obvious to require these experiments to set forth the distinction. It must always be borne in mind, that such total expectoration as makes the nearest approach to

the nature of purulent secretion is still, for the most part, of a mucous character. Secretion is infinitely modified by the nature of the constitutional disease, as well as by the local condition of parts. The general term pus, which is defined by chemists to be a fluid, of the consistency of cream, of yellowish color, and exhibiting, under the microscope, the appearance of globules diffused through a fluid, does not designate one specific quality of secretion.

Dr. Pearson distinguished four different kinds: "1. The cream-like and equally consistent. 2. The curdy, of unequal consistence. 3. The serous or thin kind. 4. The thick, viscid, or slimy." I apprehend that this last variety belongs more to mucus than to pus. In a very degenerate state of the health, the purulent secretion may undergo the putrefactive fermentation, and be converted into ichor.

The pus derived from a tubercular cavity is never cream-like, and what is commonly called pure. It is more or less curdy; it is sometimes thin, from the secreting action of the general

20 HEALTHY MUCUS FROM THE TRACHEA.

cavity, sometimes grumous, from the debris of the tubercles, with which may be occasionally mixed, broken-down portions of the lung.

I shall here make reference to the experiments of Brande and Pearson on the chemical constitution of healthy and morbid mucous secretion.

Healthy mucus from the trachea scarcely, if at all, affords any evidence of albumen when tested by acids, heat, or alcohol; but pus, although extremely diluted, gives this evidence to the test abundantly. Mr. Brande found, however, that the mucus of the trachea afforded abundance of albumen by means of electric decomposition; and further observes that alkaline matter was always evolved at the negative, and acid at the positive wire. Minute researches, made with a view of ascertaining the nature of the alkaline and acid matter thus evolved, showed the former to consist of soda, with traces of lime; the latter of muriatic acid, with traces of phosphoric acid.

Dr. Pearson, in describing the saline com-

position of expectorated matter, states "that the impregnating substances are muriate of soda, varying commonly between one and a half to two and a half per thousand of the whole matter; potash, varying between one and a half and three fourths of a part per thousand; phosphate of lime, about half a part of a thousand; ammonia, united probably to the phosphoric acid; phosphate, perhaps of magnesia; carbonate of lime."*

When the expectoration in bronchitis is thin and copious, the patient describes that he feels it to be hot, with a saltish taste, owing, doubtless, to the large proportion of saline ingredients. When it gains a thicker consistence, it becomes more albuminous and less saline, and is also less irritating to the air-passages†.

* Phil. Trans. 1809, part ii.

† Dr. Pearson observes that the saline ingredients in pus are dissolved in the serous fluid, and that the quantity of these is less than in an equal quantity of expectorated matter, but more than in an equal quantity of serum of blood.

22 EXPERIMENTS WITH PUS AND MUCUS.

With a view to ascertain some further particulars respecting the constitution of pus and mucus, I washed repeatedly with distilled water separate portions of creamy pus, and puriform expectoration, and poured them on filters of fine linen rag. The whole of the pus passed through the filter; the washed sputum left behind much flaky material. I next evaporated in warm air (not exceeding 120°) respective portions of the same substances down to dryness. The pus exhibited evidently two kinds of substances; one dark and closely resembling the dried fibrine of the blood, elastic; the other lighter in color, and resembling the dried white of egg (albumen), brittle in texture. Under the microscope, the dark material appeared full of fibres; the lighter transparent and leafy.

The sputum exhibited the transparent, leafy appearance, with here and there the same fibrous appearance as the pus, but only in a very slight degree.

It is evident, therefore, that, when blood

becomes converted into pus by the action of the vessels under inflammation, the fibrine undergoes a remarkable change of condition. It is in so fine a state of division, that it cannot be insulated, as from the blood, by washing and filtration.

May not this alteration in the state of the fibrine, and the removal of the coloring matter, probably by absorption, be the principal changes which take place in the blood, in the formation of pus ?

I should also imagine that these two conditions of the fibrine are necessarily connected with the two kinds of inflammation, the adhesive and the suppurative ; in the former case, as we well know, the fibrine in its healthy condition being the bond of union, and the medium of new organization.

From the foregoing experiments it would appear, that true pus and puriform secretion differ materially in the following particulars : the former consists of a much larger propor-

24 GLOBULES OF PUS, AND OF PURIFORM SPUTUM.

tion of fibrine than of albumen ; the latter, of almost all albumen, and but little fibrine.

Of the nature of healthy and puriform mucus, and of pus, as respects the question of the globules, I wish to make some observations.

I have examined the healthy mucus of the trachea and that coughed up in slight catarrhal cough, under the compound microscope, without being able to discover any globular structure.

In pus, the globules appeared more or less equable and well defined, accordingly as the pus was dense and creamy, or thin and serous.

In puriform expectoration, the globules were numerous and appeared swimming in the fluid ; but neither so numerous nor so large, nor so well defined, as in any example of pus.

In neither of these substances did the globules appear so perfectly arranged and equable as in the blood itself.

Between pure pus, and mucus, or even puriform expectoration, the mechanical distinction

is sufficiently obvious. A drop of pus may be taken up on the probe; but the puriform expectoration is so tenacious that it can be drawn out into the finest threads.

Pus readily diffuses itself through water, rendering it instantly milky; but healthy mucus, mixed with water, subsides without impairing its transparency; and, by agitation, is broken up into small flakes.

In desiring to satisfy ourselves, in medical practice, as to the true nature of expectorated matters, it is important that the methods adopted should possess as much simplicity as possible, and not require much difficulty of manipulation. The following appear to me well adapted to the purpose:

Let fall a portion of the expectorated matter into a glass of transparent water: if, after remaining a few minutes, the transparency of the fluid be not disturbed, it is rendered probable that the sputum is of a healthy mucous character, however it may be increased in quantity; and this is quite proved if no milki-

26 DISTINCTIONS BETWEEN PUS AND MUCUS.

ness of the-water be produced by free agitation. If, however, it become milky, filter the fluid ; and to a small portion of this add two or three drops of nitric acid ; when, if an immediate whitish precipitate be produced, we have the evidence that the sputum is albuminous, and indicating an altered, morbid secretion. We judge of the proportion of albumen according to the quantity of the precipitate*. Put another portion into a test-tube, and heat it by means of a spirit-lamp. It is rendered milky, and, after subsidence, furnishes more or less of a coagulum, according to the degree in which it is albuminous.

This, then, is one of the conditions of a puriform secretion ; but we are not justified in

* In a comparative experiment with a filtered solution of pus in distilled water, and of puriform expectoration similarly treated, I used, as tests, nitric acid and subacetate of lead, which is, according to Dr. Bostock, the best test of mucus. The purulent solution appeared to be much the most albuminous, the other solution much the most mucous, by these tests.

calling this expectoration purulent. I consider it to be a state intermediate between pus and mucus. In a specimen of homogeneous expectoration, like that now under consideration, any portion of it may be drawn out into threads, which is so characteristic a property of mucus.

I am of opinion that the appearances of the sputa are much more indicative of the nature of the morbid condition of the bronchial membrane, and of the lungs, than is commonly supposed; and that our clinical observations are very inaccurate and defective on this point.

M. Laennec expresses his opinion "that tuberculous softened matter combines so intimately with the puriform mucus secreted by the bronchia, that it is impossible to distinguish the one from the other." This is the case upon a superficial observation of the mass of the expectoration; for, undoubtedly, the purulent secretion forms only a small component part of the whole, and we may suppose that the puriform mucus which is of so viscid a nature when expectorated, is thin when first secreted; and allows of some combination with the puru-

28 EXCRETION FROM FOLLICLES OF TONSILS.

lent secretion ; but not, as I believe, so intimate as to be undistinguishable when very carefully examined. I am persuaded that, in well-marked cases of breach of surface, or of tubercular excavation, there will be distinct appearances in the expectoration. One common appearance of the purulent secretion is, fine striæ, of a lighter color than the puriform mucus, and imbedded in it. For the purpose of an accurate inspection, the sputa should be received in a shallow vessel.

It has been pointed out by Laennec that the yellowish matter, of a soft, cheesy consistence, occasionally excreted from the follicles of the tonsils, should be distinguished from the matter of a tubercular cavity. He adds, "It differs from this, however, in two striking characters : it emits a fetid odor when squeezed, and it greases paper when heated on it."

In certain circumstances, the membrane of the urethra and that of the eye-lid secrete very well-marked pus without breach of surface ; but not so, as I conceive, the mucous membrane of the bronchial tubes.

Thus far we are, I think, led to some clearer notion of the muco-puriform expectoration; but the information obtained by the means which I have mentioned, although instructive, is not complete.

The globular nature of pus, and the absence of this character in healthy mucus, are means of distinction more clear and positive than what can be derived from chemical experiments. The use of the microscope would be too inconvenient in daily practice. The ingenious method suggested by the late Dr. Young, whose views were always highly philosophical, may be adopted by every practitioner without trouble. After noticing the failure of chemical processes to discriminate between pus and mucus with accuracy, he observes as follows: "There is, however, a very simple and certain optical criterion dependent on the presence of globules, while the color indicates that there is no mixture of blood. If we put a small quantity of the substance to be examined between two pieces of plate glass, which may be carried

in the pocket for the purpose, and, holding it near the eye, look through a distant candle, we shall observe the appearance, even in the day-time, of a bright circular corona of colors, of which the candle is the centre; a red area surrounded by a circle of green, and this again by another of red, the colors being so much the brighter as the globules are more numerous and more equable. If the substance be simply mucous, there will be no rings of colors, although sometimes there is a sufficient mixture of heterogeneous particles, even in mucus, to cause the appearance of a reddish area only about the candle."

In performing this little experiment, the smallest quantity of material should be interposed between the glasses, for, otherwise, the rays of light will not penetrate; and it is better to use the clear flame of a wax taper.

I may state the following general account of my results, derived from numerous experiments:

When pure creamy pus is examined, a

beautiful ring of colour appears; a field of green or violet, surrounded by different shades of orange, of which the outer layer and deepest may be called red. Sometimes a double circle is produced. With the puriform sputum I have never seen the green or violet produced, and only shades of orange, more or less defined, and the circle more or less perfect, in correspondence with the degree of globularity exhibited under the microscope; and exactly agreeing also with the results of the chemical examination, by means of water, nitric acid, and heat, already detailed.

I carefully mixed in a watch glass, by means of a probe, one part of pure pus with 25 parts of mucous expectoration, and, in this optical examination, saw only an irregular reddish area, without any of the green or violet color; but the field of green color appeared surrounded by shades of orange when the proportions were increased to one part of pus with three parts of mucus. I tested the thin curdy contents of a tubercular cavity

in a post-mortem examination, and saw only the orange-colored circle. Healthy mucous expectoration does not produce the slightest appearance of color ; and as the colored circle is produced in a degree corresponding to the number and size of the globules in the sputum, being also accordingly more or less well defined as a circle, with the various shades of orange, we have an easy and simple mode of proving how nearly the suspected expectoration approaches to the nature of purulent secretion. When a faint and imperfect ring appears, with scarcely any variety of the orange color, we may infer that the globules are too few to produce much refraction of the luminous rays.

I should apologise for the length of this dissertation, if I could enter into the opinion of those who profess to view it as of little importance whether or not the expectoration be puriform or purulent, because they argue that a mucous membrane may secrete pus without the necessity of a breach of surface. This certainly happens, as already observed, with

the tunica conjunctiva, as seen in cases of purulent ophthalmia: I have also obtained as good an evidence of the prismatic colors from the gonorrhœal discharge, as from any pure pus that I ever examined. But I do not consider that the mucous membrane of the bronchial tubes ever takes on this high degree of morbid action, so similar to suppuration; unless in instances of ulceration, and which is very limited as compared with the whole extent of the membrane. In all the examinations that I have made, I have not found an example. I am disposed to believe that, when there is a breach of surface, or when purulent matter is discharged from a tubercular cavity, the expectorated matter will not be homogeneous, but will exhibit distinctive portions of a different color from the rest, and which, examined by the optical criterion, will shew its purulent character. I mixed a very small portion of pus with a vial of fresh mucous expectoration, and endeavoured to blend the two substances very intimately, by agitation.

34 INDICATIONS OF PURULENT SECRETION.

On examination, I detected the pus by its difference of color, partially mixed with the mucus, but by no means rendered so tenacious as the rest of the expectoration: I could easily detach it by a probe. By the optical experiment, a clear distinction from the rest of the sputum was manifested; and, indeed, the results agreed exactly in all respects with what I have found in cases, where subsequent proof by post-mortem examination has been afforded of the existence of an ulcerated surface, or of softened tubercles. I do not relate this experiment as a conclusive proof of the opinion I have expressed, but merely offer it to the consideration of the medical reader.

It must always be a point of importance whether there be or not an ulcerated surface or tubercular cavity; and hence it becomes not a mere matter of curiosity to have it in our power to judge with some accuracy of the true nature of the sputa.

It is contended by some that the examination of the sputa is but little instructive; because they say that the appearances so continually

vary. I have, on the contrary, been surprised at the remarkable uniformity of character which the expectoration preserves from day to day, and from week to week, in every individual case.

The long-continued expectoration of puriform secretion is an important sign ; as we find by experience that it is so common an attendant on tubercles ; but it is, at the same time, to be observed, that, in acute bronchitis, we may view it as a critical relief to the inflammatory action, and as affording a favorable prognosis of the event, rather than the contrary.

Dr. Pearson, when treating of this kind of expectoration, observes, "It is most frequently excreted in the latter stage of pulmonary phthisis, for many weeks successively. It is taken for granted that this matter is from a breach of surface or ulceration ; but, on examination after death, such a state was not found in many instances under my observation, although the lungs were, as usual, full of tubercles." And further—"A man labored under a cough,

36 INDICATIONS FROM THE EXPECTORATION.

with spitting of matter, which all who saw it called pus ; and, as usual, it was considered to proceed from ulceration, or suppurated tubercles ; but, on examination after death, the disease was ascertained to be condensation of the lungs to the consistence of liver, with water in the cavities of the chest, and nothing more.”*

We derive information of the state of the air-passages and lungs, from the several circumstances of the quantity and the quality of the expectoration ; from the duration of the morbid secretion ; from its color ; its odor ; its consistence ; and from its relation to the particular disease with which it is connected.

In conclusion, I am persuaded, that, in proportion as we are well acquainted with the nature of the expectorated matters, we shall be much assisted in our diagnosis, and in our practical indications. It is to be observed, that, as regards the question of a tubercular excavation, we have no source of information so clear

* Phil. Trans. 1809, Part II.

and instructive as that afforded us by the use of the stethoscope, for a long time past very generally understood and employed.

I proceed now to offer an abridged account of such cases as I conceive to be the most calculated to illustrate my present subject—the influence of various kinds of inhaling mixtures, the most important of which is that of iodine and conium.

CASE I.

(Reprinted from the former edition.)

Phthisis Pulmonalis in the last stage; the disorganization of the lungs evidently too extensive to allow any probability of cure, and the treatment adopted with the hope only of mitigating the symptoms.

The patient, a young man aged twenty-two, short and slight, with a narrow chest, pale, sallow, was much emaciated, and extremely debilitated. His father and brother both died from consumption early in life. He had long been an invalid, but first became seriously ill, with cough and difficulty of breathing, in November 1828.

I visited him in March 1829. I learnt that

his illness had been occasioned by intemperance in drinking spirits, and careless exposure to night air ; that of late he had experienced daily paroxysms of strongly marked hectic fever, and had rapidly wasted in flesh.

I found the pulse ranging from 120 to 130 in the minute, the inspirations 30, with severe sense of tightness and oppression over the chest ; the cough so frequent as to render any conversation difficult ; and he stated, that in the night it awoke him every hour. The expectoration was copious, amounting to more than half a pint in the twenty-four hours, of the appearance of ill-conditioned pus, and of disagreeable odor : viewed before the candle between two pieces of plate glass, it exhibited a ring of coloured light. The appetite was not deficient, and the digestion was for the most part regular. The night sweats were profuse ; but he was not sensible of heat of skin at any part of the twenty-four hours, although, for some time previously, and before the copious and offensive expectoration took place, he had,

as already mentioned, suffered from hectic fever.

The stethoscope, applied to the left axilla, indicated strong pectoriloquism with cavernous cough : in the right axilla, pectoriloquism was also evident : and there was a mixture of cavernous and sibilant rales. The natural respiration was scarcely audible in any part : the sound on percussion was very dull over two-thirds of the chest.

I prescribed a weak solution of iodine, with the addition of some saturated tincture of conium, mixed with water of 120 degrees of heat, to be inhaled for fifteen or twenty minutes, three times a day. I directed him to take a minim of a solution of acetate of morphia, containing a grain of the acetate in six minims, in a simple saline draught at bed-time, and to repeat this dose in an hour or two if necessary ; to regulate the bowels by simple means ; to wash the chest and upper part of the back with a mixture consisting of two parts of water, one of eau de Cologne, and one of vinegar ;

40 EFFECTS OF THE IODINE INHALATION.

dipping a towel in the lotion for that purpose ; this lotion to be used just tepid.

I shall confine myself to a general statement of the further particulars of this case, as its termination was so necessarily fatal.

On first using the inhalation, he experienced slight giddiness for a few minutes, and some sense of soreness with dryness in the tongue and throat ; but the patient rather mentioned these sensations on being interrogated than complained of them ; and they did not continue. He soon found that it afforded him great relief, the power of expectorating being remarkably facilitated ; the cough also very much abating ; the respiration becoming comfortable ; and the chest materially freed from oppression. In all respects, he improved in a surprising manner. At the end of a fortnight, the pulse ranged below 100 ; the looks and the strength were improved ; and both he and his friends, flattered by this rapid amendment, anticipated an eventual recovery of health.

He had not quitted the house for several

months, when he was tempted abroad by the favorable state of atmosphere on a fine day. The effect of the external air on his breathing and on his nervous system was remarkable. He could not meet the wind, mild and gentle as it was ; and he was several times in danger of fainting. No injury ensued.

He repeated his out-door exercise, but was unfortunate in exposing himself to a cold wind. The cough became exceedingly harassing. His chest was affected with flying pains, which were soon concentrated at the lower part of the left side ; in which situation the stethoscope indicated much sibilant rale.

For the relief of these symptoms, leeches and a blister were applied, and the inhalation was changed for a mixture of conium with hydrocyanic acid. This mixture was highly effectual in relieving the irritation of the cough : and, at the end of a week, the use of the iodine mixture was resumed ; and was attended with the same sensible and remarkable relief as before. But, ere long, the seve-

urity of the diseased action predominated, and prevailed in a frightful degree; so that even mitigation of the symptoms became difficult. The respiration was now most distressingly short; and he often expressed that he should "be suffocated with the phlegm," had he not been enabled to get rid of it by means of inhaling. The quantity of sputa was immense, and the odor extremely offensive. The disease, in its advanced state, was attended with the usual symptoms of colliquative diarrhœa, more or less alternating with night sweats, and with great œdema of the legs and feet. It would be useless to detail the progress of the case, which came to its fatal termination at the end of two months from the date of my first visit. He always expressed in strong and grateful terms how much comfort and relief he derived from the inhalation.

The following were the appearances found on examination after death: The pleura pulmonalis of the lungs on each side was universally and most firmly adherent to the pleura costalis.

There was an excavation at the apex of the right lung, sufficiently large to contain a duck's egg; and this was lined with firm layers of coagulable lymph. There was also an excavation at the apex of the left lung, similarly lined. With the exception of a small part of the inferior lobe of each lung, tubercles en masse, and in many parts softened, constituting continuous ulceration, appeared. A considerable portion of each lung was hepatised.

Observations.—The want of success in this case cannot create surprise. I could not allow myself to entertain the least expectation of it. My object was to put to the test the powers of inhalation to mitigate the symptoms in an incurable case. In this respect, the result was in the highest degree satisfactory; for, previously, the medicines which had been administered gave little or no relief. It seems reasonable to believe that the formation of firm layers of coagulable lymph, mentioned in the large excavations, were the result of a curative action. Laennec, whose memory is so dear to medical

science, and a permanent authority on the diseases of the chest, expatiates on the curability of phthisis pulmonalis, and describes instances in which, on examination of patients who at length died from that or some other disease, he found an old cavity produced by the softening of tubercles, or ulceration, changed into the state of cicatrix ; its sides being lined by a fibro-cartilaginous substance.

In the case which I have related, the fibrous layers might probably have been thus consolidated, if the patient could have recovered ; but the disorganization of both lungs was too extensive to admit of cure, either from the efforts of nature, or the assistance of art.

The appearances on dissection confirmed the indications by the stethoscope. The pectoriloquism and the cavernous cough were unequivocal signs of the extensive ulceration which had taken place. It is true that the stamp of phthisis pulmonalis, in this very advanced stage, was sufficiently obvious from the symptoms ; but the more accurate information

afforded by the instrument must be esteemed useful. It is, however, in the earlier, and what I hope may be termed the remediable state of phthisis pulmonalis, that the aid of the stethoscope is particularly valuable. Early diagnosis is of great importance; and this is so materially assisted by having recourse to auscultation and percussion, that we may often in this manner discover the existence of tubercles, at a period when the general signs might merely lead to the supposition of some derangement of the digestive organs, or of the nervous system. It is in the early stage of the disease that the physician has the opportunity of being most useful, and in which, more particularly, I have enjoyed the inexpressible satisfaction of witnessing the curative agency of inhalation. For a considerable period, and certainly long after that in which the disease of the lungs had become incurable, in the case I have now related, the digestive functions were performed with considerable regularity; showing, in this case, if I may so express it, the independent nature of the pulmonary symptoms.

CASE II.

(Reprinted.)

Phthisis Pulmonalis in the last stage; as in the former case, the disease evidently incurable, and rendered more inveterate by its complication with tubercles and ulceration in the intestines.

A gentleman, aged twenty, of scrophulous constitution, as shown by obstinate swellings of the glands of the neck in early youth, slight in figure, with a fairly proportioned chest, was very far advanced in the last stage of phthisis pulmonalis when I was first consulted. The emaciation was extreme, and the debility so great that he could not walk across the room without assistance. The pulse was 150 in the minute; the inspirations 30. The nails were remarkably incurvated. The features were thin and contracted; presenting, in a considerable degree, the facies Hippocratica. The circulation was so feebly performed, that the hands and feet were often extremely cold, and the fingers of purple hue; and yet the thermometer, applied under the tongue, indicated 100°.

The feet and ankles were œdematous. The cough was very irritable, the expectoration difficult, and much pain, with tightness, was experienced over the chest, especially at the inferior part of the sternum. The tongue was morbidly red in the middle, with foul and whitish edges. He had urgent thirst, and was without appetite. The state of the bowels was irregular; but the chief tendency was to diarrhoea. The expectoration was flaky, white, of offensive odor, sometimes bloody, and gave a strongly colored ring in the optical experiment. The nights were constantly disturbed by cough, and there were occasionally copious sweats, which had an offensive odor like that of foul earth. There was pectoriloquism under each clavicle near the axilla, and the cavernous cough was strongly marked.

I prescribed the inhaling mixture of iodine with conium, the sixth of a grain of acetate of morphia at night, and medicine in the day calculated to allay the intestinal irritation. I directed the chest to be washed with the com-

pound vinegar lotion (page 39). The diet was made as nutritious as the weak digestive powers would allow.

Extremely debilitated as this patient was, he could use the inhaler without difficulty; thus affording a proof of the convenience of this simple apparatus. The relief which was obtained from this process in the course of a few days was most remarkable, and such as to exceed my utmost expectations. The patient's description of the effects of inhaling, was, that it abated the cough remarkably, and rendered the expectoration, which before had been much suppressed, easy and free; from which change ensued a comfortable state of chest, with a great improvement in the breathing. He observed that he felt the inhalation very sensibly traverse the chest; causing an agreeable sense of warmth. By means of acetate of morphia, the nights were passed in comfort. On former occasions, when opiates had been given, they disagreed so exceedingly, that he declared "the remedy was worse than the disease."

He proceeded in a course of alternate amendment and relapse for many weeks; suffering much more from painful irritation and disorder of the bowels than from the chest; till at length nature became exhausted. The intestinal irritation was much controlled by small doses of the hydrargyrus cum cretâ joined with the acetate of morphia. He used the inhalation regularly, almost up to the period of his death, and always described in strong terms the relief which it gave to his chest.

On examination of the body after death, the following appearances were presented: On each side there was considerable adhesion of the pleura pulmonalis to the pleura costalis. The superior lobe of the left lung exhibited a continued series of excavations. The upper part of the inferior lobe was filled with tubercles. At the apex of the right lung there was an excavation capable of holding about three ounces of fluid. At the inferior part of the lung the tubercles were very numerous, and

many of them just passing into the softened state. In the excavations there was some of the lining of thin fibrine, but less remarkable than in the last case. The mesenteric glands were greatly enlarged and hardened. Numerous miliary tubercles existed in the small intestines; and in the ileum there were several patches of ulceration. The liver was large, and on its convex surface the lymphatic vessels exhibited a distinct and beautiful arborescence, such as I have rarely seen.

Observations.—If I had been governed by a rigid solicitude for the credit of the method of inhalation, I might have declined the application of the treatment to this case, which, at the first view, was so evidently hopeless. Opinion of the merit of remedies is usually referred only to the event; and a fatal termination of a case is liable to be quoted in condemnation of any particular treatment, and cannot seem calculated to support and recommend it. But surely it is the duty of humanity to adopt the use of those means which we know from experience are the most capable of reliev-

ing the symptoms ; of mitigating the sufferings of the unfortunate patient ; and thus rendering more smooth the path to death !

In the case just related there was that state of intestinal disease so frequent in phthisis pulmonalis, and which is not only a source of highly painful irritation and disorder in the alimentary canal itself, but reflects its morbid influence also on the lungs, and aggravates the pulmonary symptoms. Such complication, therefore, must always increase the gloom of our prognosis.

The soothing effect of the acetate of morphia was very satisfactory ; and we must regard this medicine as a valuable addition to modern remedies. It is more sedative than the ordinary preparations of opium, and, having a different mode of action, it is difficult to compare its strength with that of opium ; but, as well as I can make the estimate, I should rate it with the tincture of opium, in the proportion of a grain of the solid acetate to forty minims of the tincture. For the relief of severe pain,

I should give tincture of opium, or the powder or extract, to a patient with whom opium did not disagree, in preference to any other preparation; having most reliance on all the properties of opium combined, where I wish to prescribe this medicine distinctly as an *anodyne*. We well know also in how remarkable a degree great pain modifies the effects of opium; so that an individual who would be disordered in the most inconvenient manner by opium, if taking it for the purpose of procuring sleep, could have recourse to it in free doses with every good result, when using it as a remedy for severe pain. Yet there is an occasional exception even to this statement; and in such instances the acetate or muriate of morphia may be employed most advantageously as an anodyne. In my own practice I have always chosen the acetate.

The diarrhœa to which I have alluded was attended with much pain, and the excretions were very unnatural in odor and color. To correct the secreting functions, I prescribed

SUCCESS IN TREATING PHTHISIS PULMONALIS. 53

the small doses of mercury and chalk joined with the morphia, and certainly with advantage. I strongly disapprove of the employment of mercury, with reference to the pulmonary symptoms in phthisis pulmonalis : nor indeed am I aware that it has many advocates in the treatment of this disease.

I proceed now to the more agreeable task of relating cases, serving to exhibit in favorable colors the effects of the inhaling treatment.

CASE III.

(Reprinted.)

Hæmoptysis, succeeded by ulceration ; hectic fever, well marked ; from all concurrent symptoms the existence of phthisis pulmonalis established ; the curative powers of iodine inhalation strongly displayed.

A female, aged thirty-four, of delicate form, with rather narrow, yet not ill-formed, chest, of fair complexion, with dark eyes and white teeth, the mother of several children, having been much debilitated by three miscarriages

within the last two years, and suffering from a severe cough, consulted me in February of the year 1830. In the history of her case, she related that, four years ago, she first contracted a violent catarrhal cough, which had since continued always troublesome, with the exception of an intermission in the summer months; that in January she had coughed up blood to the amount of a tea-cupful; and from that time had been affected with constant cough, pains of the chest, with quickened and difficult respiration, frequent palpitation of the heart, inability to lie on the right side, and one very distinct paroxysm of hectic fever in the middle of the day, and a slighter one in the evening. There were copious night sweats: she was much wasted in flesh: the catamenia had been suspended two months: the pulse was 120; the animal heat 99° : the expectoration was in quantity about four ounces in the twenty-four hours, of a general puriform appearance, and gave a ring of colors in the optical experiment: the digestive functions were not much

disturbed; but the urine deposited much lateritious sediment.

The following indications appeared from the stethoscope and percussion*: The voice was brought distinctly under the tube at the apex of the right lung, and there was obscure *gargouillement* at that part. The sound was dull at the upper part of the right lung, and very remarkably so on percussing the clavicle. The left lung was comparatively in a healthy state.

I prescribed the compound iodine mixture (p. 9), directing a drachm and a half as the total quantity for each inhalation; to be repeated three times a day; the time occupied in the process to be fifteen or twenty minutes; two thirds of the quantity to be used for the first half of the time, the other third for the remainder; the temperature of the water in

* In this and some of the following cases, I had the advantage of an examination by Dr. Edwin Harrison, in whose long experience and great tact in auscultation and percussion, I have the highest confidence.

the inhaler to be 120°, the quantity rather more than a third of what it would contain; the inhaler to be kept immersed in a jug or any convenient vessel holding very hot water, in order to maintain the proper temperature of the contents of the inhaler. As the properties of the iodine solution are very volatile, it is expedient to divide the dose as I have stated; for, otherwise, in the beginning of the process, the inhalation would be too strong, in the latter part of it, too weak.

As internal medicines I prescribed from one to two minims of the solution of acetate of morphia; and the following draught before rising in the morning:

R Magnes. sulphat ʒi.
Infus. rosæ ʒxii.
Acidi Hydrocyan mī.
Syrupi tolutan. ʒi—M. fiat haustus.

The chest all around was washed night and morning with the compound vinegar lotion.

The diet was limited to boiled fish, vegetables, and farinaceous puddings. At the end of a few days she found herself improved, and

particularly as to the greater facility of expectorating, more ease of chest, and better respiration. The cough, however, still being very irritable, I added more conium to the inhaling mixture.

The mitigation of the symptoms was now very obvious ; and, at the end of a fortnight, the amendment was great : but about this period she took cold, and suffered severely for twenty-four hours from disorder of the bowels, and from spasms which appeared to proceed from uterine irritation. The cough became more irritable ; but otherwise the pulmonary symptoms were not aggravated. I changed the inhaling mixture for one consisting of conium and prussic acid. This indisposition soon yielded to treatment, and the iodine inhalation with conium was resumed, and the dose (divided as before mentioned) to be increased to two drachms and a half. At the end of a month her appearance was remarkably improved, and all the symptoms were relieved. The pulse was reduced to 80 ; the animal heat

to 95°; the respiration appeared unembarrassed; the cough was comparatively slight; the sputa small in quantity, and much improved in character; there was no longer hectic fever; and the night sweats were much lessened. She had gained flesh, and some improvement of strength; yet she still complained of great debility.

She had been most attentive in the use of the inhalation three times a day, and extolled it as the source of her improvement: the dose latterly had been increased to half an ounce. For the last week she had discontinued the morphia at night, and took no other medicine than the mild aperient draught occasionally. The most urgent symptoms being subdued, I now directed my attention to the improvement of the strength. I prescribed the following draught:

R *Acidi hydrocyan.* ℥i.
 Decoct. cinchon. ℥i.
 Mist. amygd. ℥ss.
 Aquæ menth. virid. ℥ii.—*M. fiat haustus bis*
 die sumendus.

She was desired to use the inhalation only twice in the day. She took mild animal food each other day, and at dinner two ounces of old port in a tumbler of cold water. She continued the use of the vinegar lotion. She took carriage exercise when the weather was favorable, and walked out occasionally.

In another fortnight I prescribed a saline bark draught, omitting the hydrocyanic acid, and allowed her to take meat or poultry every day. She continued to amend regularly. The catamenia returned. Three months having elapsed, she had recovered so completely that no further treatment appeared to be necessary. For the last week she had inhaled only once a day. She improved in flesh, and was so much stronger, that she declared herself better in health altogether than she had been for six or seven years.

The patient removed to a very distant county, and I have not had the opportunity of seeing her since my attendance; but I have heard favorable accounts of her health.

60 BRONCHITIS, WITH SUSPICION OF TUBERCLES.

CASE IV.

(Reprinted.)

Bronchitis, attended with high irritation. The existence of tubercles questionable. The utility of inhalation sufficiently well shewn, as materially assisting the removal of the symptoms.

A married woman, aged forty, of delicate appearance, fair, with red hair, having a contracted chest, laboured under a severe cough, which had been existing, more or less, for two years, but was lately so much aggravated, and accompanied with such wasting of flesh, loss of sleep, with night sweats, and reduction of the general strength, that the inmates of the house in which she lodged were alarmed from day to day "lest she should suddenly die." Four months before that period she had been delivered of a child, and the catamenia had not returned.

I found the pulse 140 in the minute, the inspirations 36, the animal heat 102°, and learnt that every day she was much affected with chills and heats. She complained of much

pain in breathing, especially at the inferior part of the sternum, and between the scapulæ. She expectorated with difficulty, and the sputa were muco-puriform in appearance, but not copious. In the optical experiment the coloured ring was rather faint. There was strong resonance in the right axilla, scarcely any in the left, and more resonance at the apex of the right lung than of the left. The sound was also more dull under the right clavicle than the left; there were mucous and sibilant rales on the right side; and there was mucous rale over the whole of the left side of the chest. There was no decided pectoriloquism.

The digestive organs were not in a healthy state; the tongue was much coated; the appetite was lost; there was much thirst; in a word, irritation prevailed over the whole system.

I directed leeches to the right side of the chest, and to the lower part of the sternum; a blister between the shoulders, acetate of morphia at night; a mixture in the day with sul-

62 THE TREATMENT, AND ITS EFFECTS.

phate of magnesia, infusion of roses, and one-minim doses of hydrocyanic acid; and the following inhaling mixture:

R Acidi hydrocyan. ʒss.
Tinct. conii ʒss.
Tinc. ipecacuhan. ʒii.
Aque rosæ ʒiii.—M. fiat mistura.

Of this mixture half an ounce, divided into two portions (as already described in the use of the iodine preparation), was used three times a day.

From these measures, the urgent symptoms became speedily relieved; and at the end of a few days, I thought it expedient to direct the use of the iodine inhalation with conium. One minim of the acetate solution at night, and one dose of the mixture before mentioned as taken in the day, were continued. At this time the pulse was 96, and the animal heat 98. The expectoration was free, not altered in appearance, and gave a faint orange colour on inspection between the plates of glass. The sharp pain of the chest was exchanged for an uneasy sense of weight, tightness, and soreness. The cough,

although, less irritable than before, was still very troublesome ; and she complained that it fatigued and subdued her very much. Her nights had been comfortably soothed by the sedative. The hectic fever was abated.

She used the inhalation for twenty minutes three times a day ; and at the end of a week the proportion of the iodine was increased, and the conium was omitted. This change was made on account of the diminution of all the symptoms, which no longer required the assistance of the narcotic ingredient. Especial consideration was due to the general debility and the feeble state of the stomach. The use of the sedatives, the hydrocyanic acid, and the morphia, was also discontinued. I prescribed a saline cascarilla draught to be taken twice a day.

In another fortnight the patient was satisfactorily convalescent. The pulse now ranged from 70 to 76 ; the animal heat was reduced to 95° ; the respiration was natural ; the cough was so slight as to be scarcely troublesome ;

there was a return of the catamenia ; the general functions of the animal economy were fast returning to health.

The inhalation was continued twice a day for another week ; and once a day for a short time. All internal medicine was discontinued. This woman's health, in the course of a few weeks, became well established.

Observations.—There was not sufficient reason in this case to suspect ulceration ; although I think the existence of tubercles highly probable. The signs of congestion in the right lung were manifest, and the mucous membrane of the bronchiæ of each lung was in a state of morbid irritation. I was much satisfied with the sedative influence of the first inhaling mixture, and still more with the curative power of the iodine.

The degree of animal heat was remarkably high, and, together with the rapid pulse, was indicative of much pulmonary irritation. I say irritation, rather than active inflammation ; and the subsidence of the symptoms chiefly from

the employment of sedative treatment confirms this view. I conceive also that the morbid action was chiefly bronchial, and that with this form of disease, the nervous system always sympathizes more actively than when the lungs themselves, in their immediate texture, are more particularly affected.

I think it probable that this woman has tubercles, and that she is liable at some future day to become the subject of phthisis pulmonalis. If this supposition of tubercles be correct, it further explains the remarkable degree of irritation which was produced.

The patient looks well, and expresses herself to be quite comfortable in her feelings, at the present time; six months having elapsed since the illness which I have just described.

Nov. 1833. I have entirely lost sight of this patient. She was in humble life, and in a lodging.

66 COUGH, WITH THE PROBABILITY OF TUBERCLES.

CASE V.

(Reprinted.)

Chronic cough, apparently depending on tuberculous irritation, cured by the inhalation of iodine and hemlock.

A gentleman, aged twenty-five, tall and slight, his chest well proportioned to his figure, first suffered from cough five years ago, from which he had never since been free, although it always became alleviated in the summer months. Until the last year he had regularly gone abroad for the winter and spring months, to receive the advantages of more equal climate; but he had passed the last cold season in this country, in apartments kept at a regulated temperature. He consulted me at the end of March, 1830. He related that his cough had been so severe in December, that his medical advisers put him on a fish and vegetable diet, with entire abstinence from fermented liquor. His constitution was highly irritable; he was of the nervous temperament; his system could not accommodate itself to

this privation of stimulus, for he had always been accustomed to a generous diet, and he found himself losing strength and flesh, was affected with night perspirations, general pains, but especially in the loins and the legs; and, after a fortnight, he resumed a supporting diet, with the use of a little wine; but it always happened, that if he went beyond a small quantity, if he talked much, or sat in a hot room, his cough became severely troublesome.

I found this patient looking thin and weak; the pulse 96, the animal heat 98°, the respirations 28 in the minute; the tongue was coated with dark white fur. Under the stethoscope the voice produced remarkable resonance on the right side of the chest, at its upper part, and the respiration was not very audible over a considerable portion; the sound also being dull; while, on the left side, the indications were good. The cough was exceedingly irritable, hard and sonorous, unattended with secretion.

The digestive organs were not in a healthy

state. His appetite could not easily be satisfied; and yet he had been losing flesh. He did not feel himself nourished and strengthened by his food. There was inactivity of the bowels. The urine gave a copious deposition of lateritious sediment.

I prescribed a morning draught with sulphate of magnesia, infusion of roses, and syrup of tolu; a saline draught at night; and in each of these draughts a minim dose of hydrocyanic acid; an inhalation, as at page 9, without the conium; the diet to be regulated as to quality, and quantity, and the hours of refreshment; but I did not debar him from animal food, nor from two glasses of wine at dinner, a little diluted with water. I changed his hour of dining from seven to two, and directed him to take a supper of gruel and milk, or bread and milk, with the addition of a fresh egg boiled, when his appetite should require it.

Such was the extraordinary irritability of the cough, attended with a harassing tickling in

the trachea, that I found it expedient to add half a drachm of the tincture of conium to the iodine; and this had the effect of softening the inhalation remarkably, to use the language of the patient, and of rendering its operation very soothing.

I directed him to wash the chest with the compound vinegar lotion, rendered slightly tepid, and that, having dried the surface, he should use the flesh-brush as long as he could do so without fatigue. The cough became surprisingly relieved in the course of a week, the pulse reduced to 84, the animal heat to 97°, and the respiration much improved. The urine deposited a large quantity of mucus, still with some lateritious sediment. He was very sensible of the advantage of dining at an early hour; his digestive functions were improved: he had before complained of great inconvenience from flatus: I did not find reason to think unfavorably of the action of the liver. He could now use a larger portion of the iodine, still however combined with conium. He

praised the effects of the inhalation in the strongest terms : he felt "that it gave a pleasing warmth to his whole chest, a lightness and comfortable freedom from oppression, which before had often greatly distressed him ;" and the cough was remarkably mitigated.

But he still complained of languor and debility, and was anxious to see himself improve in flesh. I prescribed a mixture consisting of an infusion of the cortical part of sarsaparilla in lime water, with the addition of concentrated syrup of sarsaparilla, and Brandish's alkaline liquor, to be taken mixed with an equal portion of hot milk ; and some mild aperient pills, for the regulation of the bowels. He took horse or carriage exercise according to the weather : he was a person of very active habits.

I have stated that no secretion had attended his cough ; but he informed me that, on three occasions, immediately after inhaling, he coughed up very small yellow substances, and that his chest was sensibly relieved by getting rid of them.

The patient improved progressively and regularly in all respects. The digestive functions were now healthily performed ; and the cough almost entirely ceased. He entered on the use of the graduated shower-bath—graduated as to the temperature and the quantity of water, and the frequency of its repetition. It agreed perfectly, and afforded him great benefit. He made use of dumb-bells, with a view to strengthen the muscles of the chest.

At the end of two months he expressed himself as enjoying the feelings of health. The pulse ranged from 70 to 76 ; the animal heat was 96° ; the inspirations were 18 in the minute ; he had recovered flesh and strength, so as to appear to his friends, and to feel himself, far better than he had been for many years ; he could take active exercise, and even ascend several flights of stairs, without any embarrassment in his breathing, which before became difficult on ascending quickly even one flight of stairs ; he had, in the last fortnight, lessened the frequency of using the inhalation to

twice and once a day, and without the hemlock. He now discontinued all treatment, and set out on a tour. The stethoscope indicated a more free and clear state of the respiration; and there was scarcely any difference between the sound of the right and left side.

This gentleman passed the subsequent winter at his seat in Scotland, and was able to enjoy the pleasures of his gun. With very little exception, he has remained well up to the present time. That exception consisted in taking cold, which was followed by cough and an expectoration colored by blood; but the indisposition was removed in a very short time, and now he finds himself strong and well, and equal to any exertion.

This patient was introduced to me by Sir J. Courcy L'Affan, M.D., who is well acquainted with the circumstances of the case.

Observations.—When all the circumstances of this case are considered, those revealed by means of auscultation and percussion, those which appear from the patient's own history,

and the symptoms themselves, it seems reasonable to believe that tubercles existed. Certainly, from no means that had ever before been tried did any benefit arise comparable with that produced by the inhalation. Admitting, for the sake of argument, that there were tubercles, it may be asked, what became of them? Was absorption effected, or were they rendered merely quiescent? Some pathologists contend for the power of the absorbents to remove tubercles, while it is denied by others. Much controversy has also arisen as to the nature of tubercles. The most probable opinion, I conceive, is, that they are secreted products; and that, as one set of vessels may deposit, so another set of vessels may take them away. When these foreign bodies, however, from their number, their bulk, or other causes, produce great irritation, the patient either speedily falls a victim to the extreme disturbance produced in the constitution, the hectic fever, and consequent exhaustion (the tubercles, for the most part, or altogether,

remaining entire), or the process of softening takes place, causing ulceration and a protraction of the disease. If this be extensive, and more especially if the lungs in each side of the chest be much involved in the disease, a fatal event must be expected. If ulceration of only limited extent be formed, and the remainder of the lungs be healthy, we may indulge the hope of adopting a treatment that may prove speedily useful, and assist Nature's operations towards an eventual cure. The softening in question appears to be the natural mode of cure for that condition of lung when tubercles cease to be quiescent: and I have every reason to believe that, on the one hand, this curative process is very favorably assisted by the inhalation of iodine, so as to be followed by cicatrization; and that, on the other hand, in earlier periods of the disease, the tubercular irritation is gradually diminished by its influence, without the necessity of softening taking place, and that, in the most favorable cases, it may be wholly removed. Yet it is incumbent on the patient

who has been so fortunate as to recover health, ever after to lead a life of temperance and exceeding care. Fresh tubercles may be produced, or those which yet exist, but which are quiescent, may become developed into dangerous activity. The tenure of life, under these circumstances, must be held on terms of caution, and not of careless confidence.

It will, perhaps, be objected to my praise of the inhaling treatment, that, as internal remedies were administered, the benefit might with as much propriety be ascribed to their operation as to the inhalation. In answer, I must observe, that an immediate and decided relief to the cough was given by the inhalation, such as could not be ascribed to any other cause ; that various medicines, which had been tried, had proved ineffectual ; and that, in similar cases, I have wholly failed to produce the same benefit by internal medicines alone.

Disease of the lungs is, for the most part, more or less complicated with some error of other organs ; and it would be contrary to good

sense to pursue an exclusive local treatment, very highly, and I may even venture to say essentially important, as I consider that local treatment to be. Even the surgeon, who has immediate access to the seat of disease, justly considers it necessary to join constitutional with local treatment. Not, however, I must here observe, that I consider the influence of the inhalation to be merely local : for example, the patient expresses that from the iodine he finds an improvement of the appetite and a greater regularity of the bowels; from the conium a universal, soothing effect, and relief from constitutional irritation : yet, in speaking of the operation of inhalation as principally local, we should have a sufficient argument for our purpose. To amend the condition of the functions of a vital organ of such importance as the lungs, is, indirectly to alter and improve the whole system in the most certain manner.

I should think it a waste of argument to advocate the propriety of treating phthisis pulmonalis in all its stages by a general method,

in combination with the local remedies by inhalation : such method comprehending the employment of suitable internal medicines ; the regulation of the diet ; the situation of residence ; general regimen ; and clothing.

Laennec, when speaking of the treatment of phthisis pulmonalis, thus sums up his observations : “ In order to make a direct attack upon the disease, we ought probably to be able to correct an unknown alteration in the assimilation or nutrition ; that is, an alteration in the state of the fluids of the body*.” This distinguished physician, finding, from sad experience, how untractable a disease pulmonary consumption had always proved, resorted, with the hope of benefit, to his ingenious experiment mentioned in a former page. He was of opinion, as I learnt from him in frequent conversations on the subject, that the sea air, on a favorable coast, was more useful to a patient than that of an inland situation ; and hence,

* Forbes's Translation, p. 376.

78 ARTIFICIAL MARINE ATMOSPHERE.

rather fancifully it may be thought, he attempted to establish, in a small ward of the Clinical Hospital, an artificial marine atmosphere, by means of fresh sea weed. The results, though not very distinct, appear to have afforded him some little satisfaction. He thus expresses himself: "Twelve consumptive patients were subjected to this treatment for four months. In all of them the disease remained stationary; and in some the emaciation and hectic fever were sensibly lessened. Nine of them, considering themselves cured, left the hospital, although I must admit that only one of these afforded any real hope of cure. Our supply of sea weed having failed towards spring, owing to the difficulty of procuring it, the disease from this time assumed a rapid progress in the three remaining patients, and speedily carried them to the grave."

The exhalation from the sea weed* would

* The iodine is obtained, by means of a chemical process, from marine plants.

but in a very small degree partake of the nature of a marine atmosphere.

Dr. Murray, of Belfast, recommended*, as before mentioned, the introduction of iodine diffused through warm aqueous vapor into the atmosphere of the apartment, and he extols its effects; yet how infinitely more valuable, as being certain, definite, and perfectly manageable, must be the direct inspiration of the iodine vapor from a tubular glass apparatus, administered in precise and graduated doses, either separately or combined with other efficacious substances, according to the judgment of the practitioner in the particular circumstances of the case.

CASE VI.

(Reprinted.)

Phthisis Pulmonalis; tubercles in each lung; great probability of an ulcer at the apex of the right lung; hectic fever present; the iodine inhalation highly beneficial; the tubercular irritation removed; and the patient restored to health.

A gentleman, aged forty-nine, short and

* A Treatise on Animal Heat, &c.

slight, and evidently of weak constitution, subject to winter cough, was seized with hæmoptysis some months before the attack of illness which I am about to describe; but the discharge of blood was not large, and did not continue beyond twenty-four hours. He appeared to recover his usual state of health, which was always delicate.

I was consulted in June, and found him affected with very irritable cough, short breathing, a painful state of the chest, with oppression, very disturbed sleep, and night perspirations.

The digestive functions were not materially impaired; yet the appetite was not so good as usual, and the urine deposited lateritious sediment. The bowels were regular, and the liver acted properly.

The expectoration was copious, consistent, of greenish appearance, of faint, disagreeable odor, and it afforded a well-defined colored ring when examined as before described.

He complained of great debility. The

pulse was only 60 ; but I learnt that in health it was of the remarkable slowness of 44 and 46. He had a hectic paroxysm about noon every day. The animal heat was 100. His habits were very temperate ; and for many years he had refrained from all fermented liquors.

The following were the indications by the stethoscope and percussion : Pectoriloquism at the apex of the right lung, and suspicious at the apex of the left ; dull sound in general on the right side, especially at the upper part ; dull also at the upper part of the left lung. I drew the conclusion that each lung was tuberculated ; that tubercles occupied the right extensively ; and that there was, in all probability, some ulceration at its apex.

I directed a blister to the chest ; a minim dose of hydrocyanic acid, at noon and at night, in infusion of roses, adding to the day draught some sulphate of magnesia. I prohibited animal food. He entered immediately on the use of the iodine inhalation combined with conium.

I enjoined great quiet ; for he found himself unfavourably excited by any bodily exercise, or by mental exertion.

The chest was much relieved by the blister. On the healing of the skin, I directed the use of the compound vinegar lotion, to be applied just tepid, and afterwards the use of the flesh-brush. He was sensible of a very soothing influence from the inhalation : it caused an easy expectoration, relieved the cough most satisfactorily, and rendered the breathing at once comfortable.

In two days, the pulse was 56 ; the animal heat 98° ; the sputa of a creamy white, and still of a faint, unpleasant odor. The tongue was coated with whitish flakes, and the gums were spongy, as if from mercury : but there was no ptyalism. This state of the tongue and gums was in part produced by the inhalation ; an effect, particularly as regards the tongue, which I have occasionally witnessed. But these effects either pass away, or become too slight to be regarded, as the patient becomes accustomed to the use of the inhalation.

As there appeared to be yet too much excitement in the system, I increased the dose of hydrocyanic acid to three minims twice a day ; but I did not continue these proportions more than three days ; for as the symptoms abated, I resumed the dose of one minim.

The whole plan of treatment agreed perfectly. In a fortnight, the state of the patient was surprisingly ameliorated ; and the appetite was much improved. I allowed him to eat boiled fish or mild animal food on alternate days.

At the end of three weeks, the amendment was still more confirmed. The pulse was reduced to its natural standard of 44 ; the animal heat to 97° ; the respiration was quite comfortable ; the cough very slight ; the sputa small in quantity, and consisting chiefly of frothy mucus ; the nights were passed with good sleep, and freedom from perspiration ; the tongue was almost clean, and the gums nearly restored to their natural state, although the inhalation had been regularly continued three times a day ; the urine was clear.

84 FURTHER AMENDMENT AND RECOVERY.

I never witnessed in so short a time such a happy change in the looks as appeared in this gentleman. The hectic flush of the cheek had passed away ; there was a cheerful expression of countenance ; and there was some recovery of flesh. He spoke in the highest terms of praise of the inhalation ; and, as the patient was very intelligent, and minute in his observations, I attached the more importance to his report. He stated, that it invariably gave ease and comfort to his chest ; quickly improving the breathing, and relieving the cough.

The circulation being now free from excitement, and the opportunity therefore presenting itself for the adoption of more restorative means, I prescribed the infusion of the cortical part of sarsaparilla in lime water, with the addition of the strong syrup of the cortical part, and Brandish's alkaline liquor, to be taken twice a day, in admixture with an equal portion of hot milk.

The patient continued to improve progressively in the most favorable manner. Not one

untoward circumstance occurred. He reduced the use of the inhalation to twice a day, in three weeks from the commencement ; in five weeks, to once ; and discontinued it wholly at the end of two months. At this period he was free from all symptoms of illness ; quite relieved from cough, with recovered flesh and strength ; the pulse at its natural standard of 44 ; the animal heat 96° ; the appetite, the digestive functions, and the sleep, all natural. The patient has continued in the uninterrupted enjoyment of his health up to the present time. Mr. Everard, Surgeon, of Clerkenwell, attended him in conjunction with me, and was surprised and gratified by the effects of the inhaling treatment.

Observations.—I advert to this case with infinite satisfaction, as proving the great benefit of iodine inhalation. I had the fullest persuasion of the existence of tubercles ; and could scarcely doubt the presence of some ulceration. The patient had made previous trials of medicines for the cough, without any apparent good

effect. The bad symptoms were in active progress when I commenced my treatment.

The pain of the chest indicated pleuritic inflammation ; but, as it was of the sub-acute kind, and as the constitution of the patient was delicate, I was induced to avoid the detraction of blood in any manner, and preferred the local depletion and counter-irritation which a blister so conveniently affords.

It should be held as an axiom that general blood-letting is to be practised on consumptive patients with the utmost circumspection ; and even locally it is to be considered applicable only when there is some degree of inflammation, and in persons not too much enfeebled to allow of any loss of blood.

Laennec expresses his opinion, “ that bleeding can neither prevent the formation of tubercles, nor cure them when formed. It ought never to be employed in the treatment of consumption, except to remove inflammation or active determinations of blood, with which the disease may be complicated : beyond this, its

operation can only tend to an useless loss of strength."

My own opinion coincides entirely with that of Laennec, and of Louis, who has also written ably on Phthisis, that the pains which occasionally affect the chest in pulmonary consumption are the offspring of accidental pleurisies, and are not to be referred to the tubercles, which, for the most part, do not produce any pain.

Although I place my great dependance on the use of inhalations, I consider it, in most instances, useful or necessary to call the power of medicines internally to my aid. During the state of hectic irritation, I usually prescribe very small doses of the hydrocyanic acid, as from one to three minims, in combination with a saline nitre draught, or cooling saline aperient as mentioned in this case; but I strongly object to the administration of considerable doses of this powerful agent. My purpose, with this medicine, as an auxiliary, is sufficiently answered by small doses, and which can

be administered without apprehension of disagreeable consequences.

I think it a valuable sedative, but do not attach any other importance to its properties ; and I believe that the warmest advocates of this medicine, as a curative remedy in phthisis, have found themselves quite disappointed in its effects.

The appearance of the expectoration in this case was sufficiently purulent to assist the suspicion, afforded by the stethoscope, of the probability of a small tubercular cavity.

In the present case, much advantage was obtained from the application of the blister, in removing the pain arising from subacute inflammation of the pleural membrane.

The auxiliary benefit which may be derived from counter-irritation is always to be considered.

Hippocrates and Celsus advised the making of several eschars in different parts of the body, by means of the actual cautery, on the joint principle of derivation and counter-irrita-

tion. This barbarous treatment in phthisis pulmonalis deserves only to be reprobated ; for the suffering is certain, and the advantage doubtful. Neither am I disposed to give a general recommendation of the other modes of obtaining purulent secretion from the surface ; as by means of issues formed by caustic, or moxa, or by seton. This treatment may be proper when the sputa, being of purulent appearance, continue very copious, notwithstanding that the iodine inhalation has been attentively employed.

The tartar emetic ointment sometimes proves useful ; but care should be taken not to excite the skin to the greatest degree ; for, in certain constitutions, in which irritability and debility both prevail, there is the danger that the pustules may proceed to very troublesome ulceration, and prove the source of highly injurious irritation. Eroding escharotic applications are improper.

It happens with some persons that even a blister causes a degree of irritation too disturb-

ing to the general system. I have used, with advantage, as a convenient counter-irritant, a saturated infusion of cantharides in strong acetic acid. It is a very manageable remedy, and in many ways highly convenient: if applied diluted, it will act as a rubefacient; if in its state of concentration, it will vesicate in a short time; it may be applied by means of a camel's hair brush to the smallest extent of surface, and in any situation; and it is less formidable treatment in appearance than the ordinary blister.

In cases where it is desirable to maintain a purulent secretion from the surface, and in which there may be objections to the use of seton or issue, we may find advantage from what is called a perpetual blister.

On the present subject Laennec offers the following observation: "The cases in which the excitement of discharges from the skin is most indicated, are, no doubt, those in which the suppression of an habitual discharge, or the repulsion of a cutaneous eruption, has

appeared to be the cause of the disease." Of the cauteries, he says, "I have used them, both actual and potential, extensively, in the treatment of phthisis, and I must confess that I have never obtained a cure in any case where they have been employed." Latterly he restricted himself to the application of the caustic potass, commonly beneath the clavicle, or in the supra-spinal fossa, so as to form eschars of eight or ten lines in diameter; but he did not insist upon the treatment. The French physicians practise much more on the ancient principle of remote derivation than the English; and hence, Laennec, when making use of blisters, directed their application to the arm, or the thigh, rather than to the chest. I give only partial credence to the doctrine. When active inflammation exists in the cavity of the chest, agreeably, I believe, to the general practice of the present day, I avoid the immediate local application of a blister; but, if there be only slight inflammatory action, as probably indicated by pain without fever, I choose to

apply the remedy as near as can be done to the part affected ; finding that the good results support this practice, in opposition to the contrary theory.

But, as a general principle of treatment, and one on which I have acted in the large majority of cases, I am desirous of avoiding every kind of painful counter-irritant ; to place my chief confidence in the influence of the inhalations ; and to adopt the very agreeable treatment of washing the chest with the compound vinegar lotion, in conjunction with friction by means of the flesh brush.

With regard to the means of internal treatment, in the progress of the disease and at the period of convalescence, I will in this place offer some observations.

We should exercise great caution in the employment of stimulants and tonics, whenever any degree of pulmonary or pleuritic inflammation exists. The debility, of which the patient feelingly complains, is not to be successfully combated by these means ; and, by their

excitement to the circulation, they tend considerably to aggravate the disease.

We have in reality to steer a middle course; namely, on the one hand, to husband the enfeebled energies of the constitution, by avoiding, as much as is in our power, depletion and lowering treatment; while, on the other hand, we refrain from the unseasonable use of any means which increase irritation and tend to produce inflammation. Yet I must add, that the consumptive invalid is always prone to suffer from real debility; and when the period arrives of the cessation of inflammatory action, we may carefully enter on the use of tonic and restorative medicine, with a corresponding addition to the diatetic regimen. Nor are such means forbidden by the occasional symptoms of hectic irritation which so commonly occur, care being taken to choose the interval of perfect freedom from fever for the administration of any stimulant; and the propriety of our treatment will be decided by the effects produced upon the pulse, and upon the skin. A

slower circulation taking place under the influence of a tonic and restorative plan of treatment, and the surface of the body becoming uniformly cool, are sure and satisfactory proofs of its propriety: but if the pulse should increase in frequency, with renewed heat of skin, we should immediately change our measures, and have recourse to sedative medicines and a cooling diet.

In the present case, the sarsaparilla with the alkaline liquor* proved decidedly useful towards amending the state of the digestive organs; indirectly, therefore, assisting the establishment of the general strength.

Sometimes I give the preference to the more tonic properties of the sulphate of quinine; or of decoction of bark, or infusion of cascarilla, with bi-carbonate of potash and lemon juice, as an effervescing draught: but I strongly disapprove of all spirituous tinctures used

* This preparation, being imperfectly caustic, is a much milder alkaline remedy than the liquor potassæ of the Pharmacopœia. I find it a very useful medicine.

solely, which contain but little of the substance of the medicine, and tend to heat and stimulate in a greater ratio than to strengthen.

On the same principle, of making it our study to improve the strength, rather than to increase the action of the heart and arteries, we should direct a diet that is mild and nutritious, and at the same time easily digestible in its nature, and the least stimulating. In that state of debility which is unattended with inflammatory action, it is not only admissible, but even useful, to administer, with the food, a small quantity of wine, old and pure in quality, more or less diluted with water ; or a little sound porter. It appears to me that ale is too heating a beverage for persons affected with pulmonary disease.

CASE VII.

(Reprinted.)

Empyema, with tubercles in the lungs ; convalescence promising recovery ; exposure to cold and wet producing a severe relapse of all the symptoms, and which proved eventually fatal.

A gentleman, aged twenty-five, exposed

himself, on one of the coldest days of January 1829, on the outside of a coach, having fasted for a considerable time. He felt himself seized with the cold (*coup de vent*) in the most distressing degree, and in a few hours after, when sitting in a warm apartment, he was affected with symptoms of fever. This indisposition was shortly removed; but he exposed himself again to a cold wind, the east, and very soon experienced a severe pain in the region of the heart, rendering a deep inspiration difficult, but unattended with cough.

The treatment adopted was so far successful, that he passed the summer without much cause of complaint, until August; when, in walking, he was alarmed by suddenly coughing up about three ounces of blood. This was succeeded by an expectoration which was pronounced to be purulent: it was often mixed with blood. He was not much affected with cough. He recovered in October. In November he took cold, and soon discovered a hard swelling between the fifth and sixth rib on the left side, which con-

tinued very severely painful for six weeks. Leeches were applied, and afterwards poultices. An abscess formed, which was opened by the surgeon. He was relieved by a free discharge of thin pus mixed with blood: but in about a fortnight the character of his disease was changed; as he became affected with considerable cough, attended with puriform and sometimes bloody expectoration. When I first saw this gentleman, I found him much emaciated, and in a state of great debility; the pulse ranged from 110 to 120; the animal heat was 99°: the heat of skin was temperate; but it was evident, from his report, that he had a slight paroxysm of hectic fever in the middle of every day. A deep inspiration produced some sense of pain, internally, in the situation of the abscess; but still more that of tightness. His sleep was not much disturbed. He usually had slight perspirations at night. The digestive functions appeared to be healthily performed, and the appetite was almost natural.

The fifth, sixth, and seventh ribs were ele-

vated, giving to the side a very swollen appearance. The orifice of the abscess had its edges quite inverted. There was a slight purulent discharge; and it was remarkable that this alternated with the expectoration: when the one was free, the other was very slight. Of this fact I was several times an eye witness. By auscultation and percussion the following evidence was afforded: Considerable resonance in the upper part of the right lung, and still more remarkable in the right axilla. Imperfect respiration in the upper part of the left lung; and below also it was imperfect and more distant.

Sound duller than natural on the right side; dull at the inferior part of the left, especially when the patient was in the erect position; and becoming clearer when he lay on the opposite side. I drew the inference that there were tubercles in the upper part of each lung, but particularly the right; that there was effusion into the cavity of the left pleura; that nature had performed the operation for empyema in

producing the external abscess; and that, internally, a communication had been formed, by ulceration, between the bronchiæ and pleura.

I directed the inhalation of iodine and conium; the infusion of the cortical part of sarsaparilla with a small dose of alkaline liquor; and that, when he felt himself affected with any symptoms of hectic fever, he should take a minim dose of hydrocyanic acid in a saline draught. He was allowed to take mild animal food daily, and half a pint of sound porter, which agreed with him rather better than diluted wine. The chest to be washed with the compound vinegar lotion. No inconvenient irritation was produced by the inhalation, and in a short time the expectoration ceased altogether to be bloody, although still purulent, as indicated by the optical experiment. The coloured ring was well marked.

The patient improved favorably and progressively, and expressed his persuasion that he received remarkable benefit from the inhalation. At the end of six weeks the pulse was reduced to 90, and the animal heat to 97° : there

was a great improvement in the strength, and a considerable acquisition of bulk.

At this period he went into the country, being desired to continue the inhalation twice a day, and the use of the sarsaparilla mixture, to which was added a moderate dose of Battley's liquor cinchonæ cordifoliæ*. The hectic fever had for some time disappeared, and there was no occasion, therefore, for the hydrocyanic acid.

In the country he took horse exercise daily, and had recovered flesh and strength in so great a degree, that he informed me he was almost well. The abscess in the side appeared to be perfectly healed. He had relinquished the use of the inhalation, conceiving it no longer necessary.

He unluckily was overtaken in one of his riding excursions by a cold wind with rain, not sufficiently protected by clothing; and from

* A strong concentration of the cold infusion of bark, convenient from being in the liquid form.

this accident ensued an attack of rigors, followed by excessive perspiration; to which attack the name of ague was given. He lost his strength suddenly, and was confined to the house. Fresh inflammation of the pleura now took place, and the purulent secretion, which, as before, was discharged from the side and by expectoration alternately, became considerable. He quickly lost flesh and strength. With the exception of the empyema, his situation was exactly that of a person in the last stage of phthisis pulmonalis. There was every evidence of confirmed tubercular disease. The constitution by degrees yielded to such complicated causes of irritation; and it was not in the power of medical treatment to do more than mitigate the symptoms, and sustain the fortitude of the unfortunate patient under his sufferings, which terminated in death in about two months.

Observations.—The early progress of this case, consequent to the treatment which I adopted, was in the highest degree satisfactory.

I had the fullest conviction that the inhalation of iodine was very conducive to the amendment in the state of the chest, and which had reached to such a height, that recovery appeared to be certain. Too confident indeed in his returning powers, this gentleman indiscreetly exposed himself to wet and cold, and brought on that renewal and aggravation of disease which art could not oppose:—a strong lesson to the consumptive patient, upon whom it is ever incumbent to avoid, to the utmost of his power, all remote causes of injury, and especially a careless exposure to the vicissitudes of the atmosphere.

CASE VIII.

(Reprinted)

Ulcer of the larynx, with tubercles at the apex of the lung. The good effects of iodine inhalation well exemplified; although the termination of the case was fatal.

A journeyman printer, aged thirty-nine, of slight frame, and weak in constitution, with fairly proportioned chest, dated the commencement of his cough from a year and a half previous to the time when he consulted me. He

was exceedingly emaciated; and his debility was such as to confine him to the chamber, and for the most part to his bed. He had lost his voice for six months. He stated that, some weeks before my visit, the cough had been dry, and barking in its sound. Now the secretion was excessive; for he expectorated at least a pint of muco-purulent matter every twenty-four hours; and a portion of this, examined with the lenses, &c. gave a well-marked coloured ring. It was offensive in odor, in part of a tenacious consistence, in part frothy; of mixed colors of white, green, and yellow; and some times tinged with blood. The cough was violent, and especially in the night. The respiration was hurried and difficult; and when the sputa were much accumulated, he sometimes apprehended suffocation. The pulse was 120; the animal heat 98°. The tongue was coated with a viscid creamy fur. He had much difficulty in swallowing, liquids especially, and frequently the drink would return.

Upon a careful inspection, by which I ob-

tained a view of the glottis, I could not discover any ulceration; but the velum pendulum palati, and the whole of the internal fauces, exhibited a swollen and an almost excoriated appearance. He was sensible of a distinct soreness, upon pressure of the upper part of the larynx.

The stethoscope, applied near the axilla, detected well-marked pectoriloquism; under the clavicle, for some extent, it denoted the respiration to be almost inaudible; and the sound at this part was very dull on percussion. On the right side the evidences were rather favorable. I found that, a few weeks previously, he had suffered from excessive perspirations at night; but, at that time, they were comparatively slight. I directed a solution of the nitrate of silver, in the proportion of a drachm of the pure nitrate to an ounce of distilled water, to be applied by means of a camel's hair brush to every part of the fauces which was accessible; the use of iodine inhalation with hemlock; and the washing of the chest with

the compound vinegar lotion. Internally, the sarsaparilla mixture before mentioned (p. 70), with the alkaline liquor, and small doses of liquor cinchonæ cordifoliæ, two or three times in the day; and at night, a minim of the solution of the acetate of morphia in a saline draught. The diet to be mild, and lightly nutritious.

The change which was effected in the situation of this patient, in the course of a fortnight, was quite remarkable. The condition of the fauces had been improved so much by one application of the nitrate of silver, that he was enabled to swallow without much difficulty; and by a second application this benefit was so confirmed, that his deglutition was perfectly relieved. The amendment gradually produced in the state of the larynx and the lungs was no less remarkable. The cough became abated, the expectoration was reduced to one eighth in quantity, much less consistent, and almost free from disagreeable odor. The patient described that the inhalation afforded him very sensible relief, ena-

bling him to expectorate without difficulty, and thus rendering his chest comfortable, and his breathing exceedingly relieved. The pulse was lessened to 80, and the animal heat to 96°. He was greatly improved in strength, had evidently gained flesh, and his aspect was changed from that of one apparently dying, to the appearance of beginning convalescence.

I quitted London at this time ; but learnt, from the medical gentleman under whose care he remained, that this prosperous course of improvement was suddenly interrupted by an exposure to damp and cold, in a change of apartments ; for his was the lot of poverty. This was followed by a new and violent accession of symptoms, which quickly depressed the vital powers of one who had so long been enfeebled ; and the struggle did not last beyond a few weeks.

Observations.—I relate this case as instructively shewing the fitness of iodine inhalation in a diseased state of the larynx, joined with tubercles in the lungs. I had my doubts whether

its use was admissible, and was agreeably surprised to find that it produced the best effects. I am sure that much advantage was derived from the application of the nitrate of silver; and I would always recommend this treatment in very irritable states of the larynx, when the posterior fauces present any appearance of disease of the mucous membrane. It is perfectly safe treatment, and, when applied carefully and in a moderate degree, is not at all a severe remedy. It does not seem unreasonable to believe, that, if the poor patient could have enjoyed all the comforts and advantages which his delicate condition required, he might have regained a tolerable state of health. The improvement was so decided as, I conceive, to justify this remark: and had the treatment been used at a much earlier period, permanent success might perhaps have been obtained.

CASE IX.

(Reprinted.)

Asthma—Bronchitis—promptly and very remarkably relieved by inhalation of iodine with conium.

A gentleman, aged sixty-four, for many

years constantly more or less affected with humoral asthma, was seized with severe symptoms of acute bronchitis, which became mitigated by the application of leeches, blisters, and the usual treatment: but the disease continued, passing into the chronic form. The cough was frequent, and distressingly violent; the expectoration was profuse, usually amounting to about a pint in the twenty-four hours; it was in part frothy, but in the largest proportion it was heavy, tenacious, highly offensive in smell, and occasionally mixed with blood. The breathing was sometimes alarmingly embarrassed after the fits of cough, and exceedingly oppressed also whenever the foul secretion was much collected in the bronchial tubes.

The stethoscope indicated a high degree of mucous rale, and here and there also the sibilant rale. In the upper part of the right lung, the respiration was so imperfect, and the sound from percussion of the clavicle and beneath it so dull, that I suspected the existence of tubercles.

The patient was much reduced in flesh and strength; the pulse was 80, its natural frequency being 66 in a minute; the animal heat, which I had occasionally examined when he was in his ordinary state of health, and found to be 94°, was now raised to 98°. In the course of every day, some hectic fever prevailed. He expressively declared that he felt himself to be wasting and gradually sinking; and certainly the aspect of the disease was most unpromising.

He had taken various expectorants latterly, with but slight relief: he had removed to a favorable situation for change of air, and received all the advantages of regulated diet and regimen; but the bronchial symptoms continued almost as urgent as before, when I put him on the plan of inhalation, using the iodine mixture with conium. The good effects which were quickly produced, exceeded my most sanguine expectation. Even in the short space of two days, great relief was experienced; and, at the end of ten days, the expectoration was lessened to about an ounce in the twenty-four hours,

was simply mucous, and no longer offensive in odor.

He described that he felt his whole chest comforted by the inhalation; that he could without difficulty disengage the expectoration, which before had required for its expulsion such paroxysms of cough as were frightful and overwhelming.

He took at this period of his convalescence the following draught with great advantage :

R. Sulph. quinin. gr. iss.
Sulph. magnes. ʒi.
Aquæ puræ 3x.
Tinct. aurant. ʒi.
Syrupi aurant. ʒi.
Acidi sulph. dilut. gtt. viii.—M.

Fiat haustus bis quotidie sumendus.

The patient recovered his health to a point of improvement beyond what was usual for him to enjoy ; but a perfect restoration was not to be expected in a case where such complicated disease of the lungs had long existed. After his recovery, I found the animal heat returned to its former point of 94°, and the pulse to 66.

Observations.—The powers of the iodine in-

halation in correcting the morbid condition of the mucous membrane of the bronchiæ were here most happily manifested. The patient, having been furnished with the iodine mixture separately from the tincture of conium, had from accident used it alone ; but he found that it produced an inconvenient degree of irritation, and excited too much cough. The conium was then added, and with perfect success.

The remarkable change in the degree of the animal heat is worthy of notice. In the ordinary state of his lungs there was always more or less of obstruction in the bronchiæ and air cells, and the process of sanguification could never be healthily performed ; hence I conceive that the developement of the animal heat was rather below the usual standard amongst healthy persons ; but, when morbid irritation was carried to a great height, with an increased circulation, the capillary circulation of the lungs was increased, and there was high nervous irritation affecting the pulmonary functions ; and hence, from such united causes,

the production of four degrees of animal heat beyond the ordinary standard in this individual may probably be explained.

The examination of the animal heat in patients labouring under phthisis pulmonalis is not a matter of mere physiological curiosity : it is pathologically instructive. I have found invariably that it has ranged beyond the usual standard of health in this class of patients ; and I always hail it as a favorable circumstance that it becomes reduced at the same time that the general symptoms are ameliorated. I have much less confidence in the apparent improvement of the patient, when not accompanied by a reduction of the animal heat.

It would be foreign to the purpose of this little treatise for me to enter into the difficult and extensive subject of the animal heat, as a physiological question ; and I do not wish to challenge criticism in the few remarks which I now offer.

I have made very numerous examinations of the degree of animal heat, shewn by

placing the bulb of the thermometer under the tongue, in persons in health, and in others variously indisposed. The healthy range appears to me to be from 94° to 97° ; and about a degree beyond 97° I consider to be an indication of disease. The elevation beyond the medium standard, which I would state as 95° , is not connected with mere increase of the circulation. In an elderly man, complaining of general nervousness and weakness, with palpitation of the heart and a pulse of 128, the degree was 94° . I contrast this with finding in a consumptive patient, in the last degree of debility and disease, the animal heat 101° , with the pulse 128. In a female, aged nineteen, ill with congestion of the liver and amenorrhœa, the heat was 94.5 .

I examined the animal heat (always by application of the bulb of the thermometer under the tongue) of twenty-five individuals, twenty of whom were affected with chronic rheumatism, and the remaining five laboured under some disorder of the digestive organs.

114 EXPERIMENTS ON THE ANIMAL HEAT.

I subjoin a statement of the patient's age, the pulse, and the animal heat.

AGE.	PULSE.	ANIMAL HEAT.
23.....	76.....	97
25.....	72.....	97
26.....	72.....	97
30.....	84.....	98
30.....	92.....	98
30.....	66.....	95
34.....	88.....	96
36.....	88.....	98
38.....	96.....	96
38.....	80.....	97
40.....	76.....	97
42.....	96.....	95
44.....	88.....	96
46.....	88.....	98
50.....	80.....	98
53.....	80.....	97·5
54.....	76.....	97
55.....	120.....	96
56.....	80.....	98

EXPERIMENTS ON THE ANIMAL HEAT. 115

AGE.	PULSE.	ANIMAL HEAT.
57.....	82.....	97
60.....	78.....	97.5
60.....	76.....	97
68.....	76.....	97

An examination of the animal heat of twelve persons, all in perfect health, afforded the following results :

AGE.	PULSE.	ANIMAL HEAT.
11.....	76.....	95
14.....	72.....	96
16.....	76.....	97
17.....	96.....	97
18.....	88.....	97
40.....	80.....	95.5
40.....	72.....	96
40.....	68.....	97
49.....	70.....	96
50.....	72.....	96
51.....	68.....	96
52.....	72.....	95

I state it as a fact, that, in the preceding list of invalids, all those whose animal heat gave the indication of 98 degrees by the thermometer, were suffering in some way from the state of the chest, as from cough or short breathing, or chronic pleuritic pains. I have not extended my examination of those who have been affected with disease, either acute or chronic, of other organs, and therefore my present conclusions must be cautiously stated; but I think I may venture to assert, that, when the lungs, or mucous membrane of the air passages, are in a state of irritation from disease, the animal heat is always more or less raised beyond the natural standard. The examples chosen of persons in full health serve to shew that 97° may be considered as the maximum of the healthy standard.

The heat is always raised one or two degrees by the inhalation; an effect in part to be ascribed to the actual introduction of caloric. The increase, thus immediately produced by the inhalation, soon passes away. Even if the

average temperature be raised one or two degrees, I do not consider it an objection to the continuance of the treatment, provided that the patient is not made sensible of increased permanent irritation; or that any important symptoms do not become aggravated; because it has always appeared to me that, inasmuch as a new action is required to be set up, in order to supersede the diseased action, it will happen that this new action is necessarily attended with a certain increase of the local circulation, and a consequent increase of the animal temperature.

CASE X.

(Reprinted.)

Chronic Bronchitis. The cough extremely urgent; the secretion from the mucous membrane remarkably viscid. The iodine inhalation curative within a short period of time.

J. C. aged fifty-four, tall and robust, and in good health till two months before the present illness, was attacked in March with bronchitis, the acute symptoms of which were not

of long continuance. When he consulted me, he was laboring under severe cough; and he represented that the fits were sometimes half an hour in duration, and that it was especially troublesome in the night. He had great difficulty in lying down, and was disturbed every hour or two by the accumulation of sputa, which were so glutinous and ropy as with great difficulty to be discharged even by the most continued coughing. He suffered much from night perspirations. The pulse was 88; the animal heat did not exceed 95°: he was free from fever. The appetite was deficient; but the digestion, for the most part, regularly performed.

I did not think it necessary to prescribe any internal medicine, and limited the treatment to the use of the inhalation, which consisted of the iodine mixture with the addition of a small portion of conium; but I recommended that he should omit this narcotic ingredient, except when the cough was particularly troublesome; for I conceived that the use of

the iodine alone was more favorable to the discharge of the glutinous sputa ; and so the result proved.

I directed him to wash the chest by means of a towel with the compound vinegar lotion, and afterwards to use the flesh-brush.

He quickly improved in the most satisfactory manner. He expressed that the inhalation created an immediate facility of expectorating, the effects of which were quite delightful to his feelings—"that the phlegm seemed to come from the bottom of his lungs, and that, when this was cleared away, his chest was light and easy."

The appetite improved, and the looks of the patient testified the favorable change in the state of the chest. In his own natural language, he described, with great emphasis, "the wonderful benefit which he derived from the inhalation." His cure was completed in about three weeks.

Observations.—I consider that, in this case, the influence of the inhalation upon the consti-

tution, as well as upon the parts with which it came into immediate communication, was very well shewn. The patient soon found his appetite increased; a perfect regularity of the bowels produced; and an improvement of the spirits and of the nervous system in general.

CASE XI.

(Reprinted.)

Habitual Asthma. The difficulty of breathing attended with distressing cough, readily induced by cold, damp, and especially by foggy states of the atmosphere. The symptoms satisfactorily relieved by inhalation.

A gentleman, aged twenty-seven, slight in figure, and having that form of chest which is commonly called "pigeon-breasted," had been asthmatic from his infancy, and, two years before the occasion of his consulting me, experienced a dangerous inflammation of the lungs, which had left him almost constantly suffering more or less from irritable cough, and especially in the winter season.

When I first saw the patient, he was evi-

dently laboring under bronchitis. The symptoms were very urgent, but wholly of a chronic character. The cough was extremely irritable; the bronchial secretion copious, viscid, of disagreeable odor, and of greenish color. The respiration, always in some degree embarrassed, was now much hurried, in number 32 in the minute, and distressingly accelerated on going up stairs, although he ascended with much care. He complained of a sense of stricture and oppression of the chest, with some sense of tightness in the trachea; had considerable difficulty in lying down in bed, and, when he arose in the morning, the struggle to free the air passages from the secretion which had been collected during the night, was often so severe as to weaken and render him languid for the whole day. The pulse was 96; the animal heat 95°. On each side, the stethoscope indicated much mucous rale; and there was a considerable degree of resonance.

The digestive organs were not in a healthy state: the appetite was impaired, the bowels

were irregular, the biliary secretion was deficient and vitiated, and the urine deposited much lateritious and mucous sediment. The patient was thin, and had the appearance of being worn and debilitated. He said that he always felt weary, languid, and wretched.

I prescribed internally, at first, mild aperients and alteratives, as preparatory to the use of the alkaline sarsaparilla mixture ; the inhalation of iodine alone, or conjoined with conium, directing him to add the latter ingredient only when the cough was irritable ; and further, that when the asthmatic embarrassment was troublesome, he should add some saturated tincture of stramonium. I desired him to wash the chest daily with the compound vinegar lotion ; its application being followed by the use of the flesh-brush. The result of this treatment was perfectly satisfactory. He made the following report of the effects of the inhalation : he used it regularly on first rising in the morning, sometimes before quitting his bed, and immediately obtained a facility of expectorating,

which superseded the necessity of the usual cough, and prevented its taking place in any troublesome degree. The breathing was rendered easy, and the chest light and comfortable : a happy exchange, he said, for the feelings of oppression and restraint which formerly always affected the windpipe and the chest, more or less severely. He repeated the inhalation in the middle of the day : for the most part, he employed the iodine mixture separately, as he conceived that it acted more strongly as an expectorant when thus used ; although, occasionally, he found the advantage of adding the other ingredients.

On the further plan of invigorating the constitution of this patient, I took the earliest suitable opportunity of directing the use of a graduated shower-bath, and the employment of dumb-bells.

The permanent method of treatment then consisted in the use of the iodine inhalation every morning early, the occasional repetition of it during the day, the continuance of the

tonic alterative, the sarsaparilla mixture, the shower-bath, &c.

Observations.—It could not be expected that so confirmed an asthmatic patient should acquire the possession of perfect health ; but it is satisfactory to report that the state of his chest was rendered, for the most part, very comfortable. He obtained every morning, by means of the inhalation, an effectual clearance of the bronchial tubes : by the use of the shower-bath, the ablution, friction, and dumb-bells, he gained a very marked increase of strength in the muscles of the chest, and in the body altogether ; and his general health became equally amended.

CASE XII.

(Reprinted.)

Chronic Laryngitis. The symptoms immediately relieved by an inhaling mixture of conium and hydrocyanic acid ; and the affected parts further restored by the inhalation of iodine.

A lady, aged thirty-six, was subject to chronic inflammation of the larynx, the sym-

ptoms of which were a sense of burning heat in the part, a viscid mucous secretion difficult to be excreted, impediment in the swallowing of the saliva, occasionally an irritable cough, and an uneasy respiration, which now and then became even painful, with a slight degree of spasm.

On a former occasion, when I was consulted by this patient, I observed, upon inspection of the fauces, a considerable degree of efflorescence, and the symptoms partook altogether of a more inflammatory character than in the present instance ; and then, in addition to the benefit derived from leeches and a blister locally, with antiphlogistic constitutional treatment, I obtained very excellent effects from the application of a solution of nitrate of silver, as low down near the glottis as could be reached by a camel's hair brush.

On this second occasion, there was no inflammatory appearance of the fauces ; and, as cough, with the other symptoms already described, was troublesome, I was desirous of

employing the treatment of inhalation ; and I prescribed a mixture of conium and hydro-cyanic acid.

The effects were quite satisfactory. All the symptoms were immediately relieved ; and, at the end of a week, I directed this lady to use the iodine inhalation twice a day, with a view to produce a more permanently healthy state of the mucous membrane of the air passage. I was not disappointed in my expectations. She related, that from the first inhaling mixture she experienced a soothing warmth in the wind-pipe and over the chest, with an equal relief of the breathing and the cough ; and, finally, from the use of the iodine, a gradual recovery of the natural powers of the voice and the respiration.

I advised the daily use of the compound vinegar lotion, with the flesh brush, &c. and of the graduated shower-bath, with a view to effect a permanent establishment of health.

Observations. — At a former period, this lady, for a considerable time, was subject to occasional small discharges of florid blood from

the trachea, issuing without cough or any painful sensation. I have met with several examples of this complaint, which naturally alarms the mind of the patient; and, although it does not appear to be attended with any danger, it should receive the due attention of the physician. Sometimes this discharge of blood proceeds from actual rupture of vessel; but at other times it seems probable that it is the result of transudation from the exhalants of the secreting mucous membrane.

Hæmoptysis, or the issuing of blood from the lungs, is a still more alarming symptom; it is a very common attendant on phthisis pulmonalis, and sometimes the forerunner of that disease. But, not unfrequently, it is a chronic complaint; that is, occurring occasionally for years, and the patient is so accustomed to its visitations as to lose all serious apprehension of the consequences. The disorder affects women more than men, and is often vicarious to the catamenial discharge; but I know a gentleman who has been subject to hæmorrhage

from the lungs for the last forty years, and who, during five successive years, never passed one week free from spitting of blood ; and yet, from his good looks and strength of body, he bids fair to enjoy great longevity.

As these are cases which I have not thought proper to treat with inhalations, I shall pursue the subject no further.

CASE XIII.

(Reprinted.)

Common irritable Cough ; speedily cured by the inhalation of conium.

A lady, for the most part enjoying good general health, had long suffered inconvenience from an irritable state of the trachea ; so that, from the slightest exposure to cold, she became affected with a spasmodic kind of cough, unattended with secretion. In this case I found the use of an inhalation of conium prove sufficient for the complete relief of the cough ; and my patient humorously said, “ that she never would travel without her excellent friend the pipe.”

I subsequently recommended other means, for the purpose of giving tone to the affected parts; but this simple treatment proved quite sufficient for the removal of the cough: and not finding the smallest inconvenience from the inhalation, this lady extolled its influence as far more agreeable and satisfactory than that of internal medicines, of which she had, on previous occasions, made a free use.

CASE XIV.

(Reprinted.)

Chronic Bronchitis. The cough extremely urgent, and the bronchial secretion unusually viscid and tenacious. The cure effected by inhalations and counter-irritation.

A female, aged 54, tall and slight, of delicate constitution, having rather a contracted chest, subject to winter cough for the last twenty years, with asthmatic breathing, consulted me in the latter part of autumn, for a cough of unusual severity, from which she had suffered three weeks. It was a strong sonorous cough, and so irritable, that she could not carry on any conver-

sation. She complained of a sense of tightness in the trachea, of an oppressive sense of uneasiness in the upper part of the chest on the right side, and of being very short breathed. The quantity of expectoration was upwards of half a pint in the twenty-four hours, partly frothy, but, in great part, also extremely viscid and ropy, and of a disagreeable, faint odor. When this was much accumulated, the fits of coughing were of such violence as to threaten suffocation. By the stethoscope I discovered strong mucous, and some sibilant, rales on the right, and mucous rale on the left, side of the chest. The pulse was 96; the animal heat 97.5° . The digestive functions appeared to be in a natural state, and the constitution not affected, except with nervous irritability, in consequence of loss of sleep at night from the urgency of cough, which was scarcely intermitted throughout the twenty-four hours.

I prescribed a mixture for inhalation, composed of tincture of conium, tincture of ipecacuanha, and hydrocyanic acid; the application

of the acetic acid with cantharides (p. 90) to the upper part of the right side of the chest; and no other internal medicine than a little sulphate of magnesia as occasion should require. The good effects of the inhalation were immediately apparent; and in two days the cough was so much abated, that I directed the iodine inhalation; but prematurely, as was shewn by an immediate and continued aggravation of the cough. She resumed, therefore, the first mixture, and with the former success. She described that, in two hours after the application of the counter-irritant, a considerable vesication was produced, fully as much as would have followed from a blister; that it was attended with some sense of burning, but by no means with the pain which she had always experienced from a blister; and, from the moderate sensations which she had felt, she was quite surprised to discover how much effect had been produced.

She had attentively used the inhalation three times a day for a week; at which period the cough was become comparatively slight and un-

frequent; the sputa were much reduced in quantity, and amended in quality; but still there was much of the peculiar viscid secretion before described. The pulse was reduced to 84; the animal heat to 96°.

I now directed that the iodine inhalation should again be tried; but with the addition of conium. It agreed perfectly; it proved soothing instead of irritating; and she was much struck by the facility which it gave her of expectorating—still more decided than from the use of the other mixture.

The secretion from the bronchial mucous membrane was gradually corrected, and brought to the natural state of health. In three weeks this patient recovered entirely; and, for the last few days, had used the inhalation only once or twice in the day.

Observations.—As far as relates to the treatment of bronchitis not attended with active inflammation, I should be almost contented to rest my conviction of the efficacy of inhalation on this case, so unequivocal was the benefit

speedily obtained. The patient herself contrasted it with the slow and imperfect advantages which she had derived from ordinary internal medicines, administered for a long period in the preceding winter, when the bronchial attack, according to her own account, was less severe than the one now described.

I was particularly satisfied with the effects of the lytta infusion. I have sometimes seen it produce complete vesication in the course of an hour, and think that the certainty of its action is more to be relied on than that of the ordinary blister. Although it usually causes a complete vesication, it appears to act more superficially than the plaster, as the serous effusion is commonly thinner than that produced in the vesication arising from the plaster. Hence, certainly, it is not always to be preferred. But from the promptitude of its action, the facility of its application, and the simplicity of the remedy, it is one which highly deserves the regard of the practitioner.

CASE XV.

(Reprinted.)

Bronchitis, unattended with fever. The cough very urgent, and remarkably relieved in a short time by an inhaling mixture of conium, hydrocyanic acid, and ipecacuanha.

A female, aged forty, of robust form, the mother of several children, for years past affected with severe cough in the winter season, had been ill for a fortnight, when she consulted me for the relief of one of her usual attacks. She related that she had been frequently affected with alternate chills and heats, that the cough had been "very hard," and so violent and incessant as to disable her from occupation in the day, and disturb her rest at night. The breathing was short; she did not complain of pain in the chest; but she was sensible of oppression, and felt almost a constant tickling in the larynx. The sputa were copious, and she expectorated with much difficulty. She had considerable perspirations at night, appeared languid, and described herself as greatly subdued by the

cough. The pulse did not exceed 84, nor the animal heat 97°. The digestive functions were not much disturbed; and I ventured to submit this case to the sole influence of the treatment by inhalations.

I prescribed therefore, as in the last case, a mixture of conium, hydrocyanic acid, and ipecacuanha, which she inhaled three times a day. The effects were quite satisfactory. At the end of five days, the cough was so much mitigated, that she declared herself to be almost cured, and that, in this short space of time, she had received more benefit from inhalation, than from medicines formerly taken in the usual way for a considerable time.

Observations.—Although I wish, in the general character which I offer of the treatment by inhalation, to speak of it as a valuable auxiliary rather than as being in itself sufficient, yet, I shall express the truth only when I affirm that I have, in many other instances, as well as in these just related, been able to effect the cure of bronchitis, and catarrhal cough, by

pursuing the same method, without prescribing any of the usual internal medicines.

CASE XVI.

(Reprinted.)

Spasmodic Asthma. Very satisfactory relief obtained from the inhalation of æther, conium, and ipecacuanha.

A married lady, aged thirty-six, had been subject to attacks of spasmodic asthma for some years past; from which she obtained relief by the use of antispasmodic and expectorant medicines; but her stomach was often disordered by their influence, and she had recourse to them with reluctance. I was desirous of trying the comparative power of inhalation; and prescribed, for this purpose, a mixture consisting of æther, conium, and ipecacuanha. I subjoin a statement of its effects in the words of the intelligent patient.

“ I inhaled the medicated vapor during fifteen minutes before going to rest. The first sensations it occasioned me, were slight fatigue in breathing, and an aching pain in the breast ;

which, however, subsided by degrees ; and when expectoration took place, which occurred copiously within half an hour after the inhalation, I felt completely relieved. Afterwards, in the course of the night, whenever I awoke (instead of feeling the oppression, and the difficulty of breathing which often distress me), expectoration took place without effort ; and, breathing easily and freely, I then slept again immediately. Usually, whenever I awake with the sensation of tightness across the chest, I do not sleep for an hour or two afterwards :

“ During two days after the inhalation, slight expectoration continued ; and ever since (now ten days) my breathing, both night and day, has been perfectly free.”

I here conclude the reprint of all the former cases which I published in the first edition of this work, and now proceed to my second series ; selecting such examples as appear to me the best calculated to give a clear exposition of the effects of the inhaling treatment.

SECOND SERIES OF CASES.

CASE I.

Tubercular Phthisis Pulmonalis much advanced ; marked by pectoriloquism, and by much evident tubercular obstruction ; repeated relapses from fresh softening of tubercles ; by due perseverance in the means of treatment for many months, the case brought to a successful termination.

A lady, aged 32, of fair complexion, slight in figure, above the middle height and well proportioned, of delicate constitution, the mother of several children, and who had lost a brother and a sister from pulmonary consumption, took cold in the middle of June 1830, and soon became affected with a troublesome cough, which was followed by the establishment of hectic fever, with emaciation and great debility. Digitalis was administered in free doses, with much disadvantage to the powers of the constitution, and without any relief to the symptoms. She expressed that she felt herself as if poisoned by the medicine, and she thought of it with horror. Other medicines

were afterwards employed, and counter-irritating applications were used to the chest; but she became gradually worse.

When I first visited this patient, in January 1831, I found her situation highly alarming. She was very much emaciated, was so extremely weak, with such hollowness of cheeks, and such looks of sinking, that my first impression was that of distress from the apprehension that the case was beyond the reach of any medical treatment.

The patient herself, both then and at subsequent periods of alarm, had much less of that flattering expectation of recovery than is felt by most consumptive patients. The calm resignation of her truly Christian mind to her most probable fate, was no less interesting than worthy of example.

The pulse ranged from 120 to 130; the animal heat was 103° ; the cough was violent, and so peculiarly harassing at night, that the sleep was constantly disturbed. The expectation was difficult, and in quantity about

four ounces in the twenty-four hours ; partly colored with blood, and the whole of very puriform appearance ; of a peculiar, faint, and offensive odor. Viewed between plates of glass before a taper, it afforded a well-defined circle of different shades of orange, and an inner field of light green. There were morning and evening accessions of hectic fever. The night perspirations were so profuse as completely to saturate the sheets with moisture. The mineral acids had been administered freely, without appearing to produce the slightest controul over this symptom. The tongue was coated with brownish fur in the middle, and for the most part covered with creamy secretion, giving a nauseous, mawkish taste. She had great thirst, but loathed food. The digestion was weak and irregular ; but there were no signs of a diseased state of liver, or of tubercular irritation of the intestines. The urine was loaded with lateritious sediment. The catamenia had been suspended about six months. She was so reduced in strength, that she re-

quired to be carried from the bed to the sofa in the adjoining room.

On examination by the stethoscope, I discovered, on the right side, pretty well marked pectoriloquism, and strong gargouillement; and the respiration was evidently so imperfect, and the sound on percussion so dull, as to indicate great obstruction. On the left side the signs were comparatively favorable, in all the circumstances of the voice, the respiration, and the sound elicited by percussion.

I prescribed the following mixture for inhalation :

R Iodinæ gr. v.
Potassæ Hydriodat. gr. iii.
Alcoholis ℥ii.
Aquæ distillat. ℥v.
Tincturæ Conii saturatæ ℥vi.—M.

Fiat mistura.

I directed two drams as the total quantity for each inhalation; two-thirds for the first half of the time, the other third for the remainder; the period being fifteen or twenty minutes, as might be found convenient, three times a day. Should expectoration be very difficult, from

fifteen to twenty minims of the saturated tincture of ipecacuanha were to be added occasionally.

I prescribed an infusion of the cortical part of sarsaparilla in lime water, with the addition of the syrup of the cortical part, and Brandish's alkaline liquor, to be taken in admixture with hot milk. At night, a soothing syrup, with solution of acetate of morphia, syrup of tolu, and diluted sulphuric acid. For the regulation of the bowels, which were usually inactive, a pill containing gr. iv pilul. Aloës compos. and gr. ss. pulv. Jacob.

I directed the following lotion for the ablution of the chest, night and morning: half an ounce of well-prepared tannin to be infused in twelve ounces of boiling water for four hours; then to be strained; to be mixed with two parts of this liquor, one part of eau de Cologne, and one of purified pyroligneous acid. The front and back of the chest and arm-pits to be well washed, by means of a towel, with this lotion, rendered just lukewarm by the addition of hot

water; and afterwards the flesh brush to be used. The diet to be very supporting; in the morning early, some asses' milk and biscuit; for breakfast, black tea with cream and sugar, and a fresh egg lightly boiled; in the middle of the day, oysters, or some cold chicken or other light animal food with porter*; at dinner, meat, a little boiled vegetable, with porter; after which she usually took some light nutritious pudding; in the evening, she had two small cups of tea, with biscuit or bread and butter; at night, arrow-root, or similar nourishment, with a small quantity of sherry. In the first fortnight the improvement in every particular was so remarkable, that the report made to me (for the patient at that time resided at a great distance from London) was expressive of the confident expectation of a speedy recovery. I could not indulge in so sanguine an expectation; for I was persuaded that there existed too much disease to be removed within a short

* To be procured in cask, of the best quality.

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period, even if so happy an event could be at all accomplished. A relapse did soon occur, and I made a second visit. The case presented some features of amendment. The countenance was less haggard, and the frame not so much under the influence of debility as before. The pulse rather below 120; the inspirations not exceeding 24 in the minute; the animal heat 100°; the hectic paroxysms were less urgent; the expectoration was less in quantity; the appearance of blood had been less frequent; and the nights, till within the last week, had been more comfortable; the appetite, which had become very good, was now less satisfactory. At my first visit, she had not the power of lying a single moment on the left side without producing a fit of coughing; after a week's use of the inhalation she could go to sleep on that side; but, at my second visit, she could not venture to make this attempt. Yet the general comparison was favorable, and there was every encouragement to persist in the plan of treatment.

In the beginning of March, this lady was brought to town in an invalid carriage, and was placed under my immediate care, residing in an airy, well-situated house. She had again improved since my last report; but had subsequently relapsed; and it was manifest that there had been fresh softening of tubercles, indicated by increase of hectic fever and of night perspirations, by increase of expectoration, and its bloody and more puriform appearance, with an offensive odor; by greater quickness of pulse; by a fresh loss of the newly recovered flesh and strength; the animal heat was again 103°. I prescribed the following draught of quinine:

R. Sulph. Quinin. gr. i
 Aquæ puræ ʒx.
 Acidi sulph. dilut. gtt. vii.
 Tinct. aurant. ʒi
 Syrupi aurant. ʒi.—M.

Fiat haustus octavâ quaque horâ sumendus.

The morphine sedative was continued at night, a little increased in strength; and a second dose was usually required. The liquid blister was repeated. The total quantity of

mixture at each inhalation was half an ounce. The aggravated symptoms subsided at the end of a week, and again a promising improvement took place. The quinine tonic agreed perfectly, and the dose was increased to gr. iss.

This lady remained under my regular superintendence till the middle of July; and, as it would be too tedious to pursue the regular details of the case, I hope it will be sufficiently instructive to give a general account of its progress. Several relapses occurred, in which the fresh softening of tubercles was on every occasion indicated, always preceded by increased frequency of pulse, much elevation of the animal heat, alternate chills and heat, return of night perspirations and such symptoms; quickly followed by increase of debility, greater thinness of the person, an altered expectoration from what was entirely viscid and almost inodorous, to that which in all its characters was partaking of purulent secretion, frequently mixed with blood. Such altered expectoration was also attended with great aggravation of

the cough : happily, however, by degrees the attacks of this nature abated in violence ; and also the powers of the patient became so much improved in the intervals, as to allow of a better resistance. On one occasion, from the concurring influence of an unfavorable exposure to a warm sun and a cold wind, and an accidental error in diet, the stomach and bowels became so violently disordered, with attendant derangement of the biliary secretion, that the strength sunk suddenly, and I was much alarmed for her safety. Yet this illness was soon overcome, and the constitution again rallied. The principles of treatment already described were diligently pursued, and the inhalation was never neglected ; although, in the latter weeks, the frequency of its employment was limited to twice in the day : on two occasions I changed the iodine for chlorine, for about ten days each time ; but I was convinced, by the patient's statement of its sensible effects, and by my own observation, that the iodine was much the most efficacious remedy. I latterly increased the

proportions, as in the following prescription :

R. Iodinæ gr. viii.
Potassæ Hydriodat. gr. v.
Aquæ distillat. ℥vss.
Alcoholis ℥ss.—M.

Fiat mistura.

Half an ounce of this mixture in two doses was the quantity employed, the conium being added at the time of inhaling ; in doing which, the more active influence of the iodine was obtained : but this method I do not recommend, until the continuance of inhaling has so familiarised the air passages to the stimulus, that a higher power of the medicine is wanted. The plan of producing a small blister on the right side of the chest, always changing the seat of irritation, was acted upon almost constantly ; and, usually, the liquid solution was employed. The quinine was changed for the mist. ferr. compos. ; and, after a time, the proportion of sulphate of iron (it will be recollected, converted into a carbonate), for the dose, was increased to seven grains. This medicine proved highly useful to the general strength ; the patient

experienced very sensible benefit from it. In the latter part of May there was some evident increase of flesh; and the strength was so improved, as to allow of carriage airing on every favorable day. Notwithstanding the occasional relapses, the general state of the patient was that of decided and very encouraging amendment. The explanation of the occasional increase of troublesome symptoms being given to the patient, to the effect, that they arose from the softening of some remaining tubercles, which could not be got rid of in any other way than by such a process, was satisfactory to her; and she felt encouraged to bear up under such recurring inconveniences with the more cheerfulness, as regarding them to be only of a temporary nature. She was on full diet, and had an excellent appetite to enjoy it. She drank upwards of a pint of porter daily, besides having a glass of sherry or madeira. In July she was so much recovered, that, on account of the heat of the weather, it became highly desirable she should have the ad-

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vantage of country air ; and, accordingly, she removed to a healthy spot for this purpose. Afterwards, the progress of recovery was almost uniformly favorable. The catamenia returned ; and by degrees the general powers of the constitution were comfortably restored. The inhalation was continued once a day for several weeks. Internal medicine was laid aside, with the exception of a dose of the *mistura ferri composita*, or a quinine draught, on those days when languor or a sense of weakness might be experienced.

From this time no serious relapse occurred. On one or two occasions some bilious disorder took place ; but with this the lungs did not appear to sympathise : they continued undisturbed.

Within these few days (the date at which I am writing, November 1833) I had the satisfaction of seeing my patient quite restored to health, strong, and embonpoint. She is very prudent in avoiding all improper exposure, and in the general care of herself : she justly appre-

ciates the value of her renewed health. She practises the ablution of the chest with vinegar and water, followed by the use of the flesh-brush; and from which she derives comfort and a feeling of refreshment. She expresses herself to be stronger and better than she was before this illness.

Observations.—In reviewing all the circumstances of this important case, I feel it incumbent on me first to pay the just tribute of acknowledgment to the fortitude and perseverance which this lady displayed from the first moment to the last. How largely indeed are the physician's efforts encouraged and assisted by the confidence and attention of his patient!

I remember that, some years ago, it was much the fashion to give digitalis in consumption, with an expectation of suspending the disease, if not of curing it. I believe that, in acute phthisis, employed with care and judgment, it is one of our most valuable medicines; but, in the chronic form of the disease, the most common, and that for which I recommend the

inhaling treatment, it is the last medicine which I should choose, except as a temporary one under particular circumstances. It is too depressing an agent, except when an increased circulation is joined with an active inflammatory diathesis.

The mineral acids, which had been given with a view to check the perspiration, did not appear to produce the smallest influence on that symptom. Nor will this appear surprising, when we consider that it is depending on the tubercular irritation, and forming a part of the hectic fever. It takes place in the highest degree at that period when tubercles begin to undergo the softening process. General means of treatment—as ablution of the skin with an astringent lotion; a moderately warm apartment; the avoidance of unnecessary clothing; care not to take unnecessarily relaxing diluents—are of importance, and should be attentively considered; but the real remedy is that which may exert a palliative and curative influence on the tubercular disease itself. I know of no

mode so rational in theory as the treatment by inhalation, which affords us the opportunity of conveying the power of the agent to the very seat of disease ; and I trust that, in this volume, I am fully borne out in the zeal which I shew to enforce the merits of the practice.

It should always be explained to the patient, that, as regards the effects of the iodine inhalation, immediate material relief is not to be expected. It is desirable certainly that it should sensibly agree, and that it should appear to palliate the uneasy feelings of the chest : but the principle of the treatment is of higher aim, being a curative one ; and hence it must be persisted with (unless in some case of exception in which it may not agree), under all the discouraging circumstances of a tedious, wearing, and apparently hopeless disease. I am persuaded that, in the present case, the patience of this excellent lady would scarcely have been equal to the daily, weekly, and monthly attention and exertion required of her, if I had not encouraged her confidence by my assurances, that with perseverance I did

entertain the hope and expectation of rooting out the tubercular disease from the lungs.

In no case which has ever come under my care, have I been more satisfied than in the present, with the propriety of directing a full and highly supporting diet, always, of course, being careful to avoid any sensible oppression of the stomach and digestive powers. The good condition, for the most part, of the digestive organs was undoubtedly one of the most encouraging circumstances of the case ; as, by the converse, loss of appetite, weak digestive power, and constant tendency to diarrhœa, must weaken, if not destroy, our hopes of success. As the name of the disease, Consumption, so forcibly expresses, the waste that is going on from absorption and irritation requires a countervailing proportion of nourishment ; and, as a general rule, I should wish to give the consumptive invalid as much supporting food as could be comfortably digested. Such a method of diligent supply is not admissible in the mesenteric consumption of children. In that disease, the direct channel

through which the chyle has to pass, the mesenteric glands, is obstructed; and the purpose in view of opposing the emaciation would be frustrated by the attempt of full diet. The food would be an incumbrance both to the stomach and the bowels.

Even in phthisis pulmonalis, the plan of a highly nutritious diet may, I know, be argued against very ingeniously as matter of theory; and I am aware of all the arguments which are commonly used of the necessity of avoiding excitement to the circulation, of not giving much labor to be performed by the diseased lungs in the process of sanguification; but I leave this field of speculation to those who prefer hypothesis to facts, and rest my confidence securely in the happy results which follow from the diligence of a good cook and a good nurse, to prepare and to administer all proper appliances, to sustain and restore the languid and emaciated invalid.

This patient was attended, during a part of the time, in conjunction with myself, by Mr. Duke, of Hastings.

156 TUBERCULAR PHTHISIS PULMONALIS.

CASE II.

Tubercular Phthisis pulmonalis. Pectoriloquism. A very aggravated case of consumption. The iodine inhalation successfully employed.

A gentleman, aged thirty, of slight stature, but well proportioned, of delicate constitution, and nervous temperament, consulted me in January 1831, on account of cough and symptoms of consumption. He related that, on three occasions, in earlier life, he had suffered from pleurisy; that, in December 1829, when he was weakened by mercury, he took cold, and soon experienced severe cough, which harassed him much through the spring, but became moderate in the summer. In autumn it was again aggravated, and accompanied with hectic fever and its consequences. An eminent Physician, whom he consulted, particularly conversant with the use of the stethoscope, and much experienced in diseases of the lungs, advised him to go immediately to a warm climate. He told his friends, as I learnt, that his case was tubercular phthisis pulmonalis, and that the only

probable chance of his prolonging life was the leaving England for the winter and spring, and seeking a warm and more equal climate. To this advice he would not listen, but preferred to take his chance of life amongst the friends to whom he was attached; and, under these impressions, he lived on one floor, in apartments kept at a regulated temperature. His appearance presented to me entirely the look of a person advanced in consumption. He was very weak and much reduced in flesh; the pulse ranged from 100 to 112; the animal heat was 100°; the inspirations 30 in the minute; the cough was urgent and was so distressing in the night, that he rarely slept till about five a. m.; and, on awaking, he found himself more or less covered with perspiration. The expectoration was in quantity usually about three ounces in the twenty-four hours, in appearance greenish or ash-coloured, frequently streaked with blood; portions of it had a more purulent look than the rest, and, by the tests, had such a character in a great degree; the whole of a faint, offensive odor.

He was affected with slight irregular hectic, but had not any well-marked paroxysms. He was exceedingly sensitive to slight variations of temperature, even from the opening of a door, and the going from one apartment to the other, if the thermometer in the two rooms differed but very little. The tongue was rather coated with brownish fur. There was not much failure of appetite ; but the digestion was weak and irregular, the bowels were usually torpid, and the urine gave a copious deposit of lateritious sediment.

The stethoscope afforded signs of pectoriloquism to a small extent, at the humoral extremity of the right clavicle, and the sound was dull all around this part of the chest. On the left side there was scarcely any morbid evidence. I thought that, just at the superior part towards the shoulder, there was too much resonance of the voice ; but, upon the whole, I was well satisfied with the state of the left lung.

I prescribed for inhalation three times a day the compound iodine mixture (p. 9), beginning

with 3iss for each process ; a small blister was applied over the seat of suspected excavation ; the tannin compound lotion (p. 142) was used every morning, followed by the flesh-brush. As internal medicines, the acidulated morphine syrup at night ; and, on alternate nights, two pills consisting of pilul. hydrarg. gr. ii, et pilul. al. cum myrrh, gr. iv. In the morning early, and at noon, a draught with magnes sulph. ʒi, infus. rosæ, ʒxi, syrupi tolutan. ʒi, acidi hydrocyan. gtt. i. He chose tea for breakfast, with a new-laid egg, lightly boiled ; blancmange and bread at noon ; and light animal food, with one kind of vegetable and some farinaceous pudding, at dinner. Toast-water was his beverage ; for he found that malt liquor, or wine, however diluted, much increased the irritability of the cough. He was refreshed, early in the evening, by two small cups of tea, and took a breakfast-cupful of bread and milk for supper.

He said that he had made up his mind with resignation to what he thought would be the certain consequences of his disease ; but he

received my encouraging account of success in similar cases with evident pleasure, and displayed the animation of hope.

It was my first point of satisfaction, that the plan of treatment perfectly agreed. The rest at night was most satisfactorily improved. He obtained perfect tranquillity, and much refreshing sleep. He derived a sense of comfort from the inhalation. The cough was usually troublesome during the process; but the increased facility of expectorating, and the subsequent quiet of the chest for an hour or more, made full amends for the temporary irritation. The quantity was gradually increased to ʒss for each inhalation; and when, as occasionally happened, the cough was particularly irritable, more conium was added; when expectorating was difficult, from twenty to twenty-five minims of the tincture of ipecacuanha were also used with the other ingredients.

The small blister was repeated about once in ten days. The medicines last mentioned were changed, at the end of a fortnight, for the

mixture of sarsaparilla and alkali ; the bowels, having become more regular, were assisted occasionally by the red draught, without the hydrocyanic acid. The morphine syrup at night was continued.

During six weeks there was scarcely any difference either in the quantity or the nature of the expectoration ; but the cough was moderated, and he became quite free from the violent paroxysms which had formerly often distressed him exceedingly. The constitution shewed signs of improvement ; the skin had a more equal temperature ; the flesh was firmer ; there was some improvement of strength ; the mind had lost much of its depression.

In two months the improvement of the patient was more manifest. He evidently gained flesh. He rarely required the morphine at night. I prescribed the *mistura ferri composita* ; and, finding this agree perfectly, directed diluted port wine at his dinner, which proved agreeable to him, and no longer had a heating

effect. The average state of the pulse was 88; the animal heat was reduced to 98°; the inspirations to 24 in the minute. He inhaled now only twice a day; but he did this with regularity, and invariably expressed the sensible benefit which he derived from it.

In another month the favorable change in the case was very decided. The expectoration was reduced to about an ounce in the twenty-four hours; seldom had an unpleasant odor; was whitish, flaky, and free from blood. There was less of pectoriloquism, and scarcely any cavernous cough; the pulse was from 80 to 84; and was stronger. In all respects there was amendment. He now took tonic medicine once a day only; having a steel draught and a draught of sulphate of quinine alternately, the change being made once every ten days.

Through May and June, he inhaled usually twice a day, and never less than once. He took medicines rather occasionally than regularly. A pint of the best draught porter, daily, now agreed well, and he considered himself to be

much strengthened by it. He took airings in a carriage on every fine day, open or closed, according to the weather. He used vinegar and water sponging every morning; and, after it, was diligent with the flesh brush.

In the beginning of July he appeared to be almost recovered. He observed "that he supposed he must consider himself an invalid, but that he felt very comfortably well." The pectoriloquism was exchanged for a mere resonance. There was a better sound. He had scarcely any cough remaining. It was only occasional. The pulse was 78 and 80; the animal heat 97°, the inspirations 20.

He thought himself fit again for active life, and went abroad on some mercantile concerns. I heard of him from time to time, and had the gratification of learning that he had no relapse; but the sequel is melancholy, from another cause. About six months ago, on returning to this country, recovered in health, he lost his life at sea by an unfortunate accident.

Mr. Dickinson, Surgeon, in Aldermanbury

164 PROBABLE ULCERATION OF THE LARYNX.

Postern, joined me in attendance on this patient for a considerable part of the time, and is well acquainted with all the circumstances of the case.

CASE III.

Very irritable cough ; much soreness of the larynx on pressure, and which, in conjunction with the nature of the expectoration, rendered it probable that there was ulceration of the mucous membrane.

A lady, aged 56, of slight figure and delicate constitution, had been out of health for two years, occasionally affected with an intermittent, and always complaining of much debility. She caught a severe cold ; this was speedily followed by cough, which fixed itself in a very troublesome manner. I found her complaining of much soreness and tenderness to pressure on the larynx, just below the thyroid cartilage. She stated that her troublesome cough had continued, without relief from any treatment, for six months. Eight blisters at least had

been applied over the affected part, and various medicines administered. Every afternoon, at about the same hour, a paroxysm came on of incessant cough, attended with the most remarkable difficulty of breathing, suspending the power of all bodily exertion ; and, this state of suffering continuing till evening, she was rendered absolutely prostrate with languor. She had a quick, weak pulse. Her nights were restless, and, towards the morning, perspiration was considerable. There was much expectoration, of decidedly purulent appearance, frequently mixed with blood ; and the tests which I employed convinced me of the fact of purulent secretion. I thought that there was strong evidence of an ulcerative process having been established in the mucous membrane of the trachea.

I directed, at first, an inhaling mixture composed of the saturated tincture of conium, tincture of ipecacuanha, and hydrocyanic acid ; of the first medicine 30 minims, of the second 20, and of the last 2, for each inhalation, adding

two of the hydrocyanic acid, for the latter part of the process : this agreed perfectly and was useful. After a few days, having more confidence in the curative agency of the iodine than any other remedy, and as the tracheal irritation was diminished, I did not delay longer the trial of the compound iodine mixture as at p. 9. Of this, 3iss. was, as usual, divided into two doses, and this was used three times a day. It was gradually increased to five drachms, for each inhalation. She considered that the blisters weakened her without rendering her any countervailing benefit. I applied the cantharides solution (p. 90) with an excellent effect, and it was repeated occasionally. I prescribed the sarsaparilla mixture with alkali to be taken with milk, and this was afterwards changed for the sulphate of quinine draught. Acetate of morphia was given at night, in small doses, with great advantage. The diet was supporting, and the dinner beverage consisted of port wine and water, or sherry and water, as she might choose. The case prospered from the first moment. The inhalation

invariably agreed, and the occasional aggravation of cough during the process was fully compensated by the increased freedom of expectoration, and the subsequent comfortable relief of the cough and the breathing. The appearance of the expectoration gradually improved, and at the end of two months the cure was complete.

Observations.—It is probable that practitioners not acquainted with the useful properties of the iodine and conium inhalation, would have apprehended injurious irritation from the direct application of this stimulant; but I entered on the treatment with confidence, and happily was not disappointed by the result. This lady had so much despaired of relief, from the failure of all previous means, that she had almost resolved to avoid any new measures, when I was consulted. The direct action of the iodine changed the function of the mucous membrane of the trachea, and induced healthy action. If not in a state of actual ulceration, it was bordering on this condition. The effect of the liquid prepa-

ration of cantharides deserves comment. The counter-irritation was decidedly beneficial, and the patient did not object to the application, as she had done to the regular blister-plaster. I do not propose the use of this liquid as calculated to supersede that of the plaster, which, in most instances, excites a higher degree of action, and therefore will often prove the more valuable remedy ; but there are many occasions on which it proves very convenient and preferable, on account of the facility of its application ; the great promptness of its action ; its odor being rather agreeable than otherwise ; and the unpleasant qualities of a plaster being avoided.

CASE IV.

Bronchitis, acute, and afterwards chronic ; inhalation, as a part of the treatment, proving very decidedly useful.

A gentleman, aged thirty, of slight form, and not of strong constitution, twice ill with pneumonia within the last three years, was attacked with acute bronchitis, and had been

ill a fortnight when I was first consulted. He had been bled once from the arm; a blister had been applied; and medicines had been administered, with relief to the most active part of the disease; but I found him suffering from an assemblage of troublesome symptoms. The pulse was frequent, but free from hardness; there was some heat of skin, and, towards morning, after a restless night, perspiration was always considerable, and sometimes excessive. There was some sense of tightness and oppression of the chest, and the breathing was, by very slight exertion, inconveniently hurried. The cough was irritable both by day and night. The expectoration was partly flaky and yellowish, but chiefly of the mucilaginous kind, and very viscid. The tongue was coated; the bowels, for the most part, confined; the urine deposited lateritious sediment.

In similar cases, in which febrile irritation prevailed, as the attendant of some remaining inflammatory action in the bronchial tubes, I had found advantage from joining digi-

talís with the other ingredients in the state of herb. I used the following in the present instance :

Of digitalis and conium, cut into fine portions, each ten grains ; powdered ipecacuanha two grains ; water, of the temperature of 80°, raised by means of a lamp to 130° or 140°, as the patient should find most comfortable. To be used three times a day.

This inhaling mixture produced very good effects ; relieving the irritability of the cough, and producing a more easy expectoration. The urine deposited dense mucus very copiously.

I joined other means of treatment, as the use of alteratives and aperients, with salines and diuretics. I applied the acetic acid solution of cantharides to the chest. The regular blistering plaster had lately produced so much inconvenient strangury, that he was glad to be assured that he would avoid such inconvenience by having this preparation substituted.

In four or five days, I changed the inhaling mixture for that of the iodine and conium ;

and from its use, almost without any further internal medicine, all complaint was removed in about a fortnight. The expectoration was changed by its influence, in a very short time, from the ropy state, which I just now described, to flaky mucus; and which, ere long, differed but little from the thin secretion which belongs to slight irritation of the membrane.

Observations.—Although I should avoid all proposal of inhalation during the state of acute bronchitis, yet I am persuaded of the propriety of adopting the treatment, without delay, after the removal of the inflammatory symptoms. In using the tinctures for inhalation, it is to be considered that the proportion of spirit is very small in the dose of the medicine necessary to be employed; and, becoming so largely diluted with water as it is in the inhaler, the alcoholic stimulus can scarcely be reckoned objectionable, when the disadvantage, if any, is counterbalanced by its causing the properties of the medicine to be volatilised the more readily. But, in any case in which the practitioner may

think it an objection, he may easily have recourse to several medicines in the state of herb; namely, digitalis, conium, stramonium, belladonna, lobelia inflata, and perhaps some other plants. When convenient, I would choose them in the fresh state; for then I should expect to obtain their volatile principles in the greatest perfection.

In order to use these herbs to most advantage, it is requisite to have an inhaler with a lamp*. The water should be mixed with the ingredients first at the temperature of 80°, and then gradually raised to 130°, 140°, or even higher, exactly according to the feelings of the patient.

In my future experience, I may probably have more occasion to speak of this mode of using the inhaling treatment. I have, on former

* Mr. Garden, of Oxford Street, has inhalers of this description, very ingeniously constructed, with a small thermometer to be inserted in the middle tube. For the use of the tinctures, the cheaper and more simple inhaler answers perfectly well. The heat of 120°, or even less, is sufficient to bring off the volatile principles of the fluid preparations.

occasions, employed the saturated tincture of digitalis with the other tinctures, and have been certain that it has had the effect of retarding the pulse and proving useful.

I shall here advert to the remarkable circumstance of the very copious secretion of mucus appearing in the urine, which often takes place on the subsidence of the acute symptoms in bronchitis. The glass, into which the urine is put for inspection, will sometimes exhibit dense mucus almost to the very top. I have regarded such secretion as a curative effort, and as one of the critical indications of the abatement of inflammation.

CASE V.

Irritable cough, with hoarseness, relieved by an inhaling mixture of conium, ipecacuanha, and hydrocyanic acid.

I was consulted, by letter, in the case of the wife of a medical gentleman, who had long suffered from a highly irritable cough, attended with great hoarseness. I prescribed a mixture of conium, ipecacuanha, and hydrocyanic acid (two or three drops of the latter ingredient),

for the purpose of inhalation; and suggested that, in a short time, it should be changed for the use of iodine with conium. I received, after several weeks, the following report:

“The hoarseness is considerably relieved, and her morning paroxysm of cough is not so severe. She still continues the practice of inhaling, night and morning, and has found that, when by accident she has omitted it, she has not rested so well, and her cough has been more troublesome. She has found more relief from the mixture with hydrocyanic acid, conium, &c. than from the iodine.”

Observations.—Almost invariably, the use of the hydrocyanic acid by inhalation agrees perfectly well. As it is very volatile, I now commonly direct that a drop should be added once in four minutes. It occasionally happens, from a peculiar idiosyncrasy of the patient, that the odor of this medicine affects the nerves remarkably and inconveniently.

It cannot, I think, be necessary to expatiate on the perfect safety of receiving, by inhala-

tion, the vapor of the hydrocyanic acid, in a quantity not exceeding the ordinary dose in which it is taken into the stomach. As with any other medicine, if it do not agree with the particular individual, we have only to discontinue it. I view it rather as a palliative than a curative agent ; but I have considered that, in many cases, it has formed a very useful addition to the conium and ipecacuanha. The gentleman who made the report of the effects of the inhalation, which I have quoted, is a practitioner of good judgment and of great experience.

CASE VI.

Asthma ; much morbid secretion of the bronchial membrane, relieved by inhalation.

A gentleman, aged sixty-six, of delicate constitution, subject to gout from early life, and also to asthma during the last twenty years, is occasionally in a high degree distressed with bronchial irritation, attended with excessive secretion of viscid mucus, and urgent cough.

He finds great relief and permanent benefit from having recourse to inhalation, using the mixture (p. 62), with the addition of tincture of stramonium, when irritation of the membrane strongly predominates; and, when this subsides, he has recourse to the mixture of iodine with conium, using the iodine in small doses.

Observations.—This patient has found, by comparative experience, that his “humoral asthma” is more quickly and more speedily relieved by inhalation than by medicines taken in the usual way; and he congratulates himself that he is spared the necessity of taking expectorants, which formerly created much nausea, and interfered with the functions of his weak stomach very seriously.

Although I mention the advantage of the inhaling treatment in these terms, I very rarely think it all-sufficient. In every case of chronic bronchitis, and in proportion as the secretion of the mucous membrane is excessive, particular attention should be given to the state of the alimentary canal, and the functions of

the liver and the kidneys. Alteratives and aperients, judiciously administered, are a sure source of benefit.

CASE VII.

A remarkably morbid condition of the bronchial membrane, in which there was strong evidence of ulceration; relieved in the most satisfactory manner by the inhaling treatment.

A gentleman, aged sixty, of the extreme nervous temperament, a severe sufferer from asthma during the greater part of his life, caught cold and experienced an attack of sub-acute pneumonia. By means of bleeding, and other remedies, the inflammatory symptoms were in a short time for the most part removed; but the morbid secretion of the bronchial membrane which followed was remarkable. The appearance of the expectoration strongly indicated ulceration. It exactly resembled pus discharged from an ill-conditioned ulcer. It was often streaked with blood, and very offensive in its odor. In the optical experiment it displayed a decidedly purulent character.

Together with this sputum, there was an abundance of the ropy mucilaginous secretion which is so common to asthmatic persons.

I directed inhalation, and first prescribed the mixture with stramonium, &c. mentioned in the last case, and it agreed perfectly and gave relief; but as the same bad appearance of the sputa continued, I made choice of the iodine mixture, with conium and ipecacuanha; and the good effects which soon resulted were most satisfactory. At the end of three weeks, the state of the bronchial membrane was restored to health. This gentleman usually experienced much inconvenience from acidity of stomach, and derived benefit from the alkaline liquor joined with tinctura humuli.

Observations.—The patient was very mindful of his inhaling remedy, and has recourse to one or other of the mixtures when he is incommoded by his asthmatic symptoms. We know how unwelcome it would be to the asthmatic patient to impose any extraordinary labor on the muscles of respiration, which did not give

the reward of some relief. The readiness, therefore, with which he has recourse to the inhaling treatment, is a presumptive proof of its beneficial agency.

I may here observe, that I have made trial of the saturated tincture of the lobelia inflata for the purpose of inhalation, in asthmatic cases; and I have seen relief given to the spasm by its use; but I require more experience with this medicine, so employed, to enable me to make a fuller report of its effects. When administered internally, it is unquestionably a very useful medicine in spasmodic asthma; and I have often seen it palliate the symptoms promptly and decidedly. I say palliate, for, in regard to more lasting benefit, those means should be employed which are the most calculated to rectify the disordered functions of the digestive organs; embracing a plan of medicine, and most particularly a regulated diet, and an exact regimen.

180 COUGH WITH THREATENING CONSUMPTION.

CASE VIII.

Cough, of long standing, of a very spasmodic nature, attended with colored expectoration ; the existence of tubercles rendered probable. Recovery of the patient.

A gentleman, aged thirty-four, slight in figure, but with well-proportioned chest, had suffered from a cough, more or less, for three years, when he consulted me, for a very aggravated state of his usual symptoms, in May 1832. Two of his sisters had died from consumption.

From an accidental exposure to wet and cold, he had seriously increased the complaint of his chest. I found him suffering with very urgent cough ; occasionally it was violently shaking to his chest and whole frame. The expectoration was, for the most part, free ; but it was of a bad appearance, flaky, ash-colored, and occasionally streaked with blood. The pulse was 120, from irritability ; for he was wholly free from continued fever. At night he appeared to have some hectic irritation, as he

stated that he was cold on first getting into bed, afterwards much too hot, and, towards morning, perspired considerably, sometimes in a very great degree. He said that he had lost flesh. He complained much of debility. The appetite was better than the digestion; the bowels were usually confined; the urine deposited pink sediment. He found himself short-breathed on going up stairs, and on attempting to walk quickly. The chest was not free from a sense of tightness, which occasionally became attended with pain.

On the right side, I found, by auscultation, that the inspiration was obstructed at the upper part to a small extent, and in the same situation the sound was dull. It appeared to me probable that there were tubercles. On the left side the signs were good. I prescribed a blister to the chest; a draught twice a day, as at page 56; *pilul. hydr. and extractum conii* at night; and, after a few days, a mixture for inhaling, consisting of the iodine solution, *conium*, and tincture of belladonna. This

latter ingredient was added with reference to the highly spasmodic nature of the cough. On first inhaling, he experienced a little giddiness, and some increase of cough; but such inconvenience was temporary, and he was perfectly satisfied with the after effects.

At the end of a month, the treatment was so successful that the cough was almost cured. He took quinine latterly with much advantage, and I recommended that, if he should lose the cough, he should make use of the shower-bath. He went into Devonshire, where he resided; and, in August, I was gratified with the following account extracted from his letter. "I have inhaled once a day until the last week, and have had no return of cough, and I hope to be able immediately to adopt the use of the shower-bath which you recommended. I have taken the quinine draught occasionally, and always with advantage."

Observations.—This case, although of much less serious importance than many of the others which I have related, may be mentioned as a

very favorable example of the good effects of inhalation. The patient had, previously to my advice, made trial of various remedies without success; and the complete removal of a cough, which had harassed him almost constantly during three years, within a less space of time than two months, was very satisfactory. I should expect that benefit would be afforded by the shower-bath, as I had so much cause to approve of its effects in Case V (p. 66), the constitution of that gentleman being affected by the same kind of morbid irritability. As a general rule, I should be unwilling to prescribe this agent, until the removal of all cough and uneasy feelings of the chest; and I should always direct it to be used with caution, graduated as to the quantity of water, the temperature of the bath, the frequency of its employment, and some other circumstances.

CASE IX.

Tubercles in the right lung, with the suspicion of pectoriloquism in the axilla. The case evidently scrophulous. Iodine inhalation very serviceable. The patient recovered.

A delicate young woman, who had always lived in the country, aged twenty-four, fair, evidently scrophulous, having cicatrices in the neck; well proportioned, with a circular chest; subject to cough for years past; caught cold at different times in the early part of the spring of 1833, which ended in the fixing of a severe cough, for which I was consulted. She had a hectic appearance, complained of much debility, had lost flesh, the pulse was 100, the animal heat 99° , the respiration was oppressed, and distressingly hurried even by the slight exertion of rising from the chair. Her sleep at night was much disturbed; and, before rising, perspiration became very copious; the tongue was coated at the sides, and preternaturally red in the middle. The appetite was lost; the bowels were con-

fined; the urine deposited much lateritious sediment; the catamenia had been for some time suspended; the cough was almost constant; the expectoration considerable in quantity, was creamy, offensive in odor, and frequently streaked with blood.

Dr. Edwin Harrison examined her chest in conjunction with me, and we found the sound duller than natural at the upper part of both lungs, but particularly so on the right side. For some extent, the respiration was very imperfectly heard, and there was considerable evidence of pectoriloquism, and of cavernous cough, in the right axilla; so as, together with the other symptoms, to render the aspect of the case very serious.

I prescribed a draught, twice a day, as at p. 56, the acidulated morphine syrup at night, a small blister just under the right clavicle, the morning lotion as at p. 142, and the inhaling mixture of iodine with conium, commencing with the dose of ʒiss.

At the end of a week there was a consider-

able alleviation of all the symptoms. She now mentioned that she had suffered, during the last fortnight, a painful state of her neck; and, on examination, I found a considerable glandular swelling, which was so much inflamed as to threaten suffocation. I thought it right to promote this, and directed that it should be fomented and poulticed.

At the end of another week, there was some further improvement. She expressed herself in the strongest terms of satisfaction with the inhalation, describing that although, at the time of using it, the cough was sometimes rendered more troublesome, yet the expectoration became more free, her respiration easier, and the chest altogether comfortably relieved. The dose had been increased to *ziii*. The expectoration was improved in appearance, and very rarely marked with blood. The gland had suppured, and freely discharged pus which was not thin.

I prescribed the sarsaparilla mixture with alkali, to be taken twice a day, or once when she might require the red aperient draught in

the morning early. The morphine sedative was not always necessary at night.

On my next visit, I made a particular examination of the chest, and found better indications. Now the cough had lost its cavernous character ; but there was still, for a small space, almost pectoriloquism, and what I believe many persons would pronounce to be such. The sound on percussion was improved.

In all the general circumstances of health she was much amended. The discharge from the neck continued ; the surface was covered with a plaster consisting of equal parts of emplastr. hydrarg. et cerati saponis.

The case went on most favorably. At the end of three months, she expressed herself to be quite recovered. The catamenia had returned. She appeared restored in strength and good looks. After a walk of two miles, the pulse did not exceed 78 ; the animal heat was 97° ; the respiration was comfortable. The stethoscopic indications were now good ; the sound was improved, but not quite natural. She had,

with only occasional intervals, taken the sarsaparilla alkaline mixture, and had never omitted to inhale once a day.

She quitted London for a distant part of the country ; and I have had the satisfaction of hearing, lately, very good accounts of her continued health.

Observations.—Although I do not relate this case as a clear example of tubercular excavation, yet it was undoubtedly one of aggravated disease, with the certainty of tubercles. It may be offered as a corroborating instance of the useful and important effects of iodine inhalation. I have no doubt that the glandular suppuration in the neck was useful as a counteraction to the disease of the lungs ; but even this consideration need not deduct from the praise to be given to the inhalation, which was too manifestly useful to admit of doubt.

The suspension of the catamenia is a very ordinary occurrence in the early periods of phthisis pulmonalis, and shews at least the general derangement of the system. This

function is not to be disregarded, even viewed in the light of a periodical depletion from the circulation, particularly in some constitutions, and especially when there is any tendency to hæmoptysis; but I apprehended that, for the most part, it is to be considered important as an act of regular secretion, in an organ with which the nervous system sympathises in a high degree, destined to be as regularly excreted. The return of this function becomes an additional satisfactory evidence of the improvement of the constitutional health, and is a sign of harmony in the functions of the animal œconomy.

CASE X.

Chronic Bronchitis, with suspicion of tubercles The symptoms very urgent, and successfully treated by inhalation and other means.

A gentleman, aged thirty-eight, tall and of full make, corpulent, of fair complexion and thin skin, had been, at various periods since the age of twenty-three, subject to attacks of acute bronchitis. Two years previously to the

illness about to be described, he suffered much from an affection of the trachea; and he observed, "that strong and powerful as he appeared to be in his general frame, he was made too sensible of having a very weak chest." He added, that he had lost four, amongst his brothers and sisters, from pulmonary consumption.

I found this gentleman, in July 1831, suffering severely from symptoms of subacute bronchitis. I directed the usual means of leeches, blistering, and medicines, for the removal of inflammatory action; employing, at the same time, with much relief to the patient, an inhalation composed of conium, digitalis, ipecacuanha, and small doses of hydrocyanic acid.

He was, in a short time, relieved from the most severe symptoms; but the complaint assumed a chronic character. The cough was very irritable, the expectoration viscid, creamy, and also frothy, of disagreeable odor, and excreted with difficulty. The respiration was restrained by a distressing sense of oppression. He complained of much internal soreness along

the whole course of the sternum, and, in particular, of an internal itching irritation in the same direction. He described the irritable state of the air passage "as occurring three or four times in every twenty-four hours, and lasting for an hour at a time; commencing in the throat and apparently travelling down the windpipe; attended with much uneasiness, and huskiness, with wheezing; these symptoms terminating with expectoration."

At this period the pulse was frequent; there were two slight accessions of fever daily, the one at six, a. m. the other about noon. He had strong night perspirations. The tongue was coated; the appetite deficient; the bowels were irregular; and the urine very copiously deposited lateritious sediment. By the stethoscope, mucous rales were discovered on the right side; the respiration appeared to be much obstructed; and, over a considerable extent of the right lung, the sound on percussion was dull. By slight exertion the breathing was distressingly hurried.

I prescribed an alterative pill at night ; a saline aperient in the morning early ; the sarsaparilla mixture in the middle of the day ; and for inhalation, the iodine and conium. The chest was washed every morning with the eau de Cologne mixture. The diet was regulated.

The treatment succeeded perfectly. There was every cause to be satisfied with the effects of the inhalation. He found the itching sensation within, quite relieved by it. The feeling of oppression of the chest was removed, and the expectoration was rendered free and easy.

He recovered entirely in the course of two months, and remained well for almost two years. The complaint returned last August, in a less inflammatory form than before ; and again he experienced the most marked benefit from inhalation. At this period he does not make the smallest complaint of his chest. He was so well convinced of the great benefit which he had derived from inhaling, that he said he was bound in gratitude to represent the value of the treatment to any invalid whom I might wish to refer to his experience.

Observations.—I attach a particular importance to this case, from the belief which I was led to entertain of the existence of tubercles, and the consequent satisfaction that, during so long an interval as I have mentioned, the health was not interrupted by any return of pulmonary irritation.

The deposition of lateritious sediment in the urine is almost a constant attendant on phthisis; arising, I believe, from imperfect assimilation of the chyle; and I conceive that the kidneys perform a depuratory office, in removing from the blood much of its unassimilated material. This symptom is a never-failing attendant on dyspepsia; and it is worthy of observation, that, in proportion as the functions of the liver are affected, the color of the sediment is pink. In very nervous states of constitution, under dyspepsia, the sediment is of a light color.

I have elsewhere* explained the chemical causes of these different appearances.

* See Treatise on Gout, Gravel, and Morbid States of the Digestive Organs, &c. fourth edition.

CASE XI.

Tubercular Phthisis Pulmonalis ; pectoriloquism ; inhalation eminently successful.

A young man, aged twenty-two, tall and well formed, with circular chest, having enjoyed from childhood general good health, though not considered strong in proportion to his rapid growth from eighteen to twenty, caught cold in the latter part of December 1832, while under the influence of mercurial medicine. I was first consulted in the middle of February 1833, when he complained of a distressing sense of tightness and oppression across the chest, rendering his respiration rather difficult, and particularly so on ascending the stairs. He had a very troublesome cough, and it was sometimes so urgent as to produce a stitch in some part of the right side. The expectoration was not very abundant, was greenish in color, in part flaky, in part in solid masses blended with mucilaginous and frothy fluid, of a faint, offensive odor ; and I learnt that it was

occasionally mixed with blood. The pulse ranged from 100 to 120, was soft and tremulous; the animal heat was 100°; he had a distinct hectic paroxysm in the middle of the day, and usually a second in the evening. His nights were almost sleepless; he had considerable perspirations towards the morning; he arose languid and dispirited, and was so weak as to be unequal to any exertion. He was without appetite, the tongue was much loaded with dark white fur at the sides, and it was morbidly red in the middle; the bowels were torpid; the urine deposited lateritious sediment copiously. He lost flesh daily, and had a truly consumptive appearance.

On examination by the stethoscope and percussion, I found that the disease existed chiefly in the right lung. Over a considerable extent of the upper part of the right side, the respiration was almost inaudible, and the sound dull. On the left side, the indications were much more favorable.

It appeared to me that the right lung was

much obstructed by tubercles, and that the symptoms were indicative of the softening process having commenced. I prescribed the following medicines :

R Magnes. Sulphat. 3iss.
Infus. Rosæ 3xi.
Syrupi Tolutan. 3i.
Tincturæ Digitalis ℥v.—M.

Fiat haustus bis terve die sumendus, prout alvus soluta fuerit.

R Pulv. Jacob. ver. gr. i.
Pilul. Hydrarg. gr. iv.
Extract Colocynth. compos. gr. iv.

M. et fiant pilulæ ii. h. s. s.

He was furnished with morphine syrup, acidulated with sulphuric acid, and directed to take a dose equivalent to the sixth of a grain of the acetate. I commenced with an inhaling mixture of aqua rosæ, tinct. conii, tinct. ipecacuanhæ, et acid. hydrocyan. using of the last medicine only three drops as the total quantity for each inhalation. This proved soothing, and, as he expressed it, comfortable. I directed a blister to the chest. I was surprised to witness the remarkable languor and depression of strength produced by its action—an effect

not very uncommonly happening to consumptive persons, but rarely in so great a degree as in this instance. Leeches were applied occasionally to the parts of the chest in pain (the right side), and with advantage.

After a few days, I began with the iodine mixture (p. 9), using one dram and a half as the total quantity for each process, three times a day. It agreed perfectly, and he described that he felt his chest comforted by it—that it produced an agreeable sense of warmth, and more power and freedom of respiration; although, in the act of using it, more cough took place—which, however, was attended with increased freedom of expectoration.

In about ten days there was a change in the symptoms, and in the sputa. The hectic fever and the night perspirations were diminished; the pulse, though still quick, was rather less frequent. The expectorated matter was of a mixed nature, chiefly, as before, viscid, but in part grumous, and curdy; and this giving a more colored ring in the optical expe-

rimment than the other part : occasionally it was mixed with blood : the whole rendered water very milky. By the stethoscope, pectoriloquism was just perceptible; and the cough was slightly cavernous.

In generalising the history of this case, I shall state the following facts.

As the disease proceeded, the pectoriloquism and the cavernous cough became very distinctly marked ; the expectoration increased in quantity, was of a mixed character, partly purulent, and partly puriform, varying in aspect from green to ash-colored, not unfrequently mixed with blood, and always more or less offensive in odor. For several weeks his state fluctuated between amendment and relapse ; and at several periods I was alarmed by the severity of his symptoms ; the urgent accessions of hectic fever ; the quickness of pulse ; the painful state of respiration ; the exceeding restlessness at night, so imperfectly relieved by opiates, that I advised him to omit them, and trust to the chance of a little natural sleep.

He was, as before, restless; and a saline draught, with Hoffman's æther and syrup of poppy, afterwards proving almost without effect, I prescribed acetate of morphia and the liquor opii sedativ. together, in a saline mixture, to be taken in such repeated doses as might be necessary. By these means his sleep was brought back. The saline sedative medicines lately in use were exchanged for the sarsaparilla mixture with alkali. An attack of the epidemic *influenza** came upon him, most unfortunately, just at the period when we were flattering ourselves with the hope of a more favorable progress. I now almost wholly despaired for my unfortunate patient—so much aggravated were all his symptoms. His debility was such, that it was difficult for him to move from his bed to the sofa.

* I had two patients under treatment, a lady and a gentleman, whose cases were at first most unpromising, but who had so far improved as to inspire me with some hope, though certainly not with any confidence, of eventual success, when severe symptoms of influenza seized the lungs, and soon led to a fatal termination. This will not appear surprising to those who remember the character of that epidemic.

In this state of weakness, I could not attempt to relieve the pleuritic pains of the right side of the chest, which troubled him exceedingly, even by the application of leeches; and, instead of them and blisters, I prescribed fomentations with opium and diluted vinegar, and afterwards the volatile liniment with the addition of tartarised antimony*. This produced an abundance of small pustules; and such counter-irritation did not occasion the depressing effects which I have before mentioned as arising, in this case, from blisters, even from the application of the acetic solution of cantharides, though by no means in the same degree as the plaster. The fever attendant on the influenza was continued, and required appropriate treatment. The iodine inhalation was suspended for a short time; and I used a mixture of conium, digitalis, and hydrocyanic

* I am aware that, in this preparation, some decomposition may be expected to take place; but I find it a convenient application, acting as a rubefacient, and producing the pustular eruption sufficiently, though not so fully as when the antimony is used in the form of ointment.

acid. Happily, this intercurrent disease was at length conquered, and he came back to his former state, appearing much the same as before in all essential circumstances; but certainly weaker.

The former plan of treatment was resumed. The iodine inhalation now again agreed perfectly; he took the sulphate of quinine joined with small doses of sulphate of magnesia and sulphuric acid, with benefit. It should be mentioned that, throughout the progress of the case, the bowels had been so inert as to require aperient medicine almost daily. The night perspirations had lately so much increased, that I directed the lotion, as at p. 142, to be used instead of the vinegar and water and eau de Cologne, which he had previously employed; to be followed by the use of the flesh brush, and then by the rubbing-in of a strong solution of camphor in oil of almonds.

The appetite improved, and I directed a very restorative diet, consisting of light animal food twice a day; and, as the beverage, sound

porter ; with intervening nourishment. The increased pectoriloquism, which had lately taken place, rendered it manifest that the process of softening of tubercles had been going on very regularly ; and, hence also, there was a full explanation of the urgent symptoms which had prevailed for many months.

With a view to improve his strength, the *mistura ferri composita* was given in free doses, instead of the sulphate of quinine, which seemed to have almost lost its influence. This new medicine agreed perfectly.

The dose of the iodine mixture was increased to half an ounce for each respective inhalation ; and this quantity was never exceeded. For one week I had recourse to the chlorine inhalation ; but then resumed the iodine, as the patient expressed his preference for it, and I saw no reason against its continued employment.

In June, he was sufficiently recovered to go and reside at a short distance from town, where he might have the advantage of change of air.

He continued all the means of treatment, reducing the frequency of the inhalation to twice in the day. Gentle horse exercise proved very useful. He gradually, but very regularly, improved. He recovered appetite entirely, as also the powers of digestion; and the bowels became regular. Natural sleep returned. He acquired flesh and strength; and, by the end of August, I hardly recognised him as the same individual whom I had, for so many months in succession, seen bowed down with debility, and apparently yielding to the power of a mortal disease.

At the present date, December 1833, this young man expresses himself as feeling quite recovered. He has resumed his occupation in the business of his father, who is a respectable sadler. He has recovered his former bulk; and, as a proof of his strength, he states that, on three occasions lately (most imprudently!), he walked a distance of twelve miles in the day.

His pulse is 72; the animal heat 97°. He has a little cough in the morning on first rising,

but altogether does not expectorate more than a drachm. This expectoration retains much of its puriform character.

Upon examination of his chest, I find a well-marked pectoriloquism still remaining at the superior part of the right lung, and much dulness of sound over a great part of the right side. On the left side of the chest, the signs may be pronounced favorable.

Observations.—My friend Dr. Edwin Harrison can bear his testimony to the convalescence of this patient. We must suppose that the cavity, which is still the source of pectoriloquism, is cicatrised*; for how, otherwise, could all the healthy functions of the system be so well enjoyed? I hope that there may not be any return of tubercular mischief.

* Laennec observes, "Indeed I feel assured that when the use of the stethoscope becomes more general, it will be found that, in those cases in which a well-marked phthisis, attended by pectoriloquism, is converted into a chronic catarrh, the pectoriloquism will frequently continue through life, and infractuous cavities, lined by a semi-cartilaginous membrane, will often be found in the lungs after death."

I advise him to continue the inhalation of iodine and conium once every day. He has never yet relinquished its use for more than one fortnight, from the commencement. I enjoin him to guard most carefully against cold and damp, and to consider himself as an invalid. He wears a plaster over the right side of the chest, composed of emplastr. opii et cerat. sapon. having for a long time been sensitive, in that part, to atmospherical changes. He still uses vinegar and water, with subsequent friction, to other parts of the chest.

RECAPITULATION,

WITH FURTHER OBSERVATIONS.

I trust that, in the foregoing pages, I have redeemed the promise which I gave, of shewing the efficacy of medicated inhalations in various

disordered states of the air passages and lungs. A general scepticism prevails as to the possibility of curing tubercular phthisis pulmonalis ; and, in truth, there is no disease which bids such general defiance to the means of medical art.

Acute consumption, which for the most part occurs in the early periods of life, before the age of 25, runs its melancholy course in a rapid manner. The hectic fever attending it observes but short intermissions ; the circulation knows no quietude ; the process of disorganisation of the lungs goes on rapidly ; the body wastes daily and hourly ; all the symptoms are strongly marked ; and, although death sets so sure a seal on the fate of the unfortunate invalid, hope, even up to the dying moment, will often deceive his mind, and mislead him into future* calculations belonging to health and active life.

* I attended a distinguished Professor and Physician (the late Dr. Thomas Browne), in acute phthisis, who, up to his last hour, busied his active mind in contemplating the arrangement of a new work for the press !

In the most acute forms of the disease, I have not even made a trial of inhalation ; but, when the symptoms are intermediate, between the acute and chronic (sub-acute), there will be occasions on which it will be proper to have recourse to the treatment. In hæmoptysis, I have wholly avoided every kind of inhalation, having found that even the vapor of hot water so employed has proved too stimulating. When, however, all hæmorrhagic action has passed away, and we have reason to believe that tubercles exist, the case becomes simplified ; and will, in all probability, allow of the inhalation of iodine and conium.

The colored expectoration which occasionally appears during the progress of pulmonary phthisis, does not constitute any objection to the employment of inhaling. I have not found it necessary in instances of this kind to suspend the use of the iodine and conium. The streaked appearance has passed away as quickly as if no inhalation had been used ; but, in any case, in which I have seen pure arterial blood

distinct from the puriform secretion, I have suspended the treatment.

It will now be understood that the diseases in which I consider it proper to adopt the inhaling method, are, some kinds of cough; certain asthmatic conditions of the air passages; chronic bronchitis, formerly more commonly called humoral asthma; and, above all, tubercular phthisis pulmonalis.

I have related some cases of asthma, in which the patient has, under the accidental increase of morbid secretion, received much benefit from inhaling. Case XVI exemplifies its advantage for the relief of asthmatic spasm; but, in the highest degree of spasmodic asthma, the patient is, in all probability, too much distressed and embarrassed, to be able to inhale at all. A combination of stramonium, lobelia inflata, conium, and ipecacuanha, may be tried with the chance of giving relief, and a certainty of not doing harm, provided that inflammatory action do not exist. If æther be used, the dose put in at once should be from six to twelve

minims ; but, on account of its great volatility, it should be renewed every three or four minutes during the process. It is sometimes a very useful addition to the other ingredients.

In chronic bronchitis, the benefits of inhalation are so well proved by the speedy favorable alteration produced both in the quantity and quality of the expectoration, and by the sensible relief which is experienced by the patient, that no question of the value of the remedy can be reasonably entertained.

It is in tubercular phthisis pulmonalis that the profession will be inclined to doubt the probability—some even the possibility—of success. I can most conscientiously declare that I have related my cases with the strictest fidelity, and have, in every instance, studied rather to under-state the results than the contrary. There must be a large proportion of cases in which the treatment will fail in consequence of the great extent of the disease in each lung ; and, frequently, from a complication of tuber-

cular irritation, with or without ulceration, in the intestinal canal. But, in the most desperate circumstances, I can assert that more or less of relief may be afforded by inhalation ; and it is surely right to give every invalid the greatest chance of receiving benefit.

I form the most favorable prognosis when I find all very serious disease confined to one lung, the other being competent to its functions ; and in proportion to its soundness will be our hopes of treating the case with success. My most successful cases have been those in which the right lung has been the one diseased.

I have usually seen that the patient can lie best on the diseased side, when the right lung is affected ; I suppose from the greater assistance to respiration being given by the muscles of the sound side, when free from compression ; but when the left lung is the chief seat of the disease, the patient appears to prefer lying *towards* the right side ; for, if he attempt to lie wholly on the left, the action of the heart is rendered more irritable, and cough is increased.

A more cheerful prognosis may be offered, when the appetite and digestion are regular, and when there is no disposition to diarrhœa.

I have been consulted in many cases in which the disease has proceeded to so great an extent as to preclude any reasonable expectation of success; but I have thought it my duty to make the attempt. In some of the cases related in this volume, I despaired of success; but had the great satisfaction of obtaining it by perseverance. It will not be imagined that I have less confidence in the importance of inhalation, because my professional brethren either pay no attention to the practice, or make trial of it in a slight, and I must say inadequate, manner; and then report lightly of it, or probably pass a sentence of condemnation. With a weaker confidence in the merits of the treatment, I should have had less zeal to pursue it, and could not have sufficiently encouraged my patient.

Every one must admit the large occasion there is for leaving the beaten path in the treat-

ment of consumption—so almost universally does death makes its victims in this disease. How many are sent to a foreign climate, only to find a foreign grave! Change of climate is not likely to prove adequate to the cure of tubercular consumption; and far better do I consider it to keep the invalid in his comfortable home quarters, and make a direct attack on his disease by the means of treatment, which, I have shewn, will have much chance of success, if the circumstances of the case are not too highly unfavorable. Change of air, and even of climate, is very important, when the occasion has ceased for the extreme regularity of the treatment being continued, and the consequent superintendence which it requires. I should be always glad that a restored patient should be able to avoid the winter and spring of our English climate, and, by choosing a better, take the wisest step towards confirming the convalescence, and preventing renewal of disease.

Few authors who have written on consumption, have offered much encouragement towards

its cure by means of art. Laennec very forcibly pointed out the manner in which Nature sets up the attempt of cure in the softening of tubercles, and the removal of the tuberculous matter by expectoration, this being sometimes followed by a cicatrisation of the cavity ; but he did not advise any method of treatment for assisting this process, in which he appeared to have any confidence.

It remains for future experience to decide whether my opinions are correct ; but I venture to believe that I have in several cases succeeded in producing the absorption of tubercles by the continued influence of the inhalation of iodine ; nor would this, I think, appear improbable, when we consider how very efficient this medicine proves in exciting the absorbent system to activity. I also believe that it does, in the most favorable manner, assist the softening process, when the disease has come to that stage ; causing a more free expulsion of the tuberculous matter by expectoration ; inducing a more healthy condition of

the bronchial mucous membrane ; very probably dispersing crude tubercles by the stimulus given to the absorbents ; and finally assisting the healing process in the ulcerated cavity, or in the ulcerated surface membrane ; accordingly as the disease may be seated in the lung itself, or in the bronchial tubes.

At p. 22, I have stated, as the result of my examination of pus, that the fibrine was in the state of very minute division, and could not be separated, as from the blood, by the process of washing and filtration.

Is not this to be regarded as a beneficent provision of Nature, under the circumstances in which the suppurative inflammation is commonly set up ? In canals, for example, of which the free and patulous condition is indispensable to the performance of their functions, and consequently to the purposes of life, what mischief would not the suppurative action have entailed, if the fibrine of pus had been endowed with the same properties as that of lymph effused under the adhesive inflammation.

Dr. Carswell, in the beautiful plates which he has recently published, in his important work of Pathological Anatomy, has shewn the different situations of tubercles very clearly and satisfactorily.

The author points out that the tuberculous matter is sometimes so abundant and dense as to produce an extensive obstacle to the pulmonary circulation, and thereby occasion hæmoptysis. He gives one example of infiltration of a large portion of lung from tuberculous matter, which led to gangrene, in consequence of compression and obliteration of the blood-vessels.

He defines tubercle as follows:—“Tuberculous matter is a pale yellow, or yellowish-grey, opaque, unorganised substance, the form, consistence, and composition of which, vary with the nature of the part in which it is formed, and the period at which it is examined.”

He remarks, “that the formation and manifestation of this matter as a morbid product cannot take place, unless the fluid from which

it is separated—the blood—has been previously modified :” and “ that a healthy secreting surface may separate from the blood not only the materials of its own peculiar secretion, but also those of tubercular matter. Such is, indeed, what takes place in the air cells.” I had certainly conceived that the tuberculous matter was formed by the morbid action of the vessels, although, obviously, the elements of the product must be furnished by the blood. I quite agree with the author, “ that the formation of tuberculous matter originates in a process similar to that of secretion.”

In speaking of the softening process, he contends that “ softening begins most frequently at the circumference of firm tuberculous matter, or where its presence as a foreign body is most felt by the surrounding tissues.” He differs in this from Laennec, who stated that the softening process began in the centre of the crude tubercle, and proceeded from thence to the circumference. Dr. Carswell, if I understand him rightly, considers it impos-

sible that the change which takes place in softening, can originate in the tuberculous matter itself, and that it must be induced by a new condition of the surrounding tissues, and new action of the vessels. He speaks of the removal of tuberculous matter both by absorption and by expectoration; and considers that "the important fact of the curability of tubercular phthisis has been already established by Laennec."

The whole view which has been so ably given by Dr. Carswell of this important subject, appears to be perfectly in support of the propriety of applying medicated agents in a direct manner to the diseased parts by means of inhalation; and such was my idea when I first adopted this method of treatment.

When the irritating quality of the morbid bronchial secretion, with or without the addition of tuberculous matter, is considered, we cannot be surprised at the urgency of the attendant cough, which is its sure companion. But we have further to consider that cough is

of essential use towards the necessary removal of the secretion, which, too much accumulating in the tubes, would fearfully obstruct respiration. It is only desirable, therefore, to oppose the excess of cough ; that which appears to depend on irritation and spasm ; and which may, in its frequency and violence, go beyond the occasion required for the expulsion of the secreted matter.

The reader has had full proof of the preference which I have given to the action of iodine over that of chlorine. I consider that it is by far the most capable of exciting the parts to that action which leads to the removal of the morbid matter ; of stimulating the absorbents ; and of bringing about healthy action. I ought not to pass over a question which has now and then been proposed to me, as to the perfect safety, or otherwise, of inhaling iodine ? I wish to meet this question by full and fair discussion.

The smallest dose of the iodine which I ever use for each distinct inhalation is the tenth of

a grain; the largest, five-eighths of a grain; the medium dose a little exceeding a quarter of a grain.

Lugol, who has written so fully and ably on the use of iodine in scrophula, states that, in prescribing it internally, he commences with half a grain daily; in the second fortnight, he gives three-fourths of a grain; and during the fourth or fifth fortnight, a grain, usually continuing this quantity to the end of the treatment. I think it must be admitted, that the administration of iodine by the stomach must be far more influential on the constitution than by means of inhalation; and, consequently, would be attended with a greater liability to accidents. M. Lugol, in his Memoir, upon which a report was made to the Royal Academy of Sciences, with the highest encomiums bestowed on this physician by the Commission appointed, thus expresses himself of this important medicine:

“ I have described, as clearly as I could, the effects of iodine on the animal œconomy.

Resting on my own observations alone, I cannot relate a single accident produced by this substance; but I should not therefore pass by the assertions hazarded about its pretended noxious action, especially since prejudices have been created in the minds of several practitioners*." And again, when alluding to its supposed influence of producing emaciation, he says, "I can confidently assure the practitioners who have listened to such prejudices, that I have never seen a case in which iodine injured the health in any manner whatever. Far from being ever hurtful, it is a powerful stimulant, which revives the organic functions, fortifies the general constitution, and *encourages the growth and increase of size.*"

This will probably be regarded as too partial a statement. Iodine is certainly a medicine which should not be carelessly given, and it is one not fit for inexperienced hands. We cannot expect to find a medicine capable of pro-

* See Translation from the French, by Dr. O'Shaughnessy.

ducing important effects in disease, and at the same time incapable of doing any harm.

There are idiosyncrasies of constitution, which render the action of all the active medicines in the highest degree inconvenient: for example, opium, which, with the majority, when required, acts as a heavenly balm, produces, with some individuals, waking delirium. Mercury, in very small doses, acts most deleteriously as a poison in a few constitutions. It may also occasionally happen, as an exception to the general rule, that a long-continued use of iodine inhalation will not agree with the constitution of the individual. The opinion should not hastily be taken up. In the influence of so destructive a disease as pulmonary consumption, there is quite enough to account for the distress of the body without impugning the treatment. I have rarely had occasion even to suspend the use of the iodine inhalation till three or four weeks after the period of its commencement; and in most of the bad cases I have continued it, once, twice, or three times

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a day, without interruption, for months ; as, for example, in the new successful cases I and XI. But, in any instance in which we have reason to doubt its agreeing with the individual, it will be right to change it for the chlorine ; and resume it afterwards, or not, according to circumstances.

The iodine inhalation sometimes occasions an irritation of the mucous membrane of the posterior fauces, which gives the appearance of a dark-colored inflammation, scarcely attended with any sense of soreness. It commonly passes away even during the continuance of the treatment ; but if it prove troublesome, this would be a motive for suspending the treatment for a few days. In these circumstances, I have sometimes employed chlorine with the addition of conium*.

I have every reason to believe that some practitioners have abruptly given up the use of the iodine, from having committed the error of

* The admixture of iodine, and also of chlorine, with hydrocyanic acid, is incompatible ; and equally so that of iodine with chlorine.

commencing with too large a dose; or, not being careful to mix with it a sufficient quantity of conium. The purity of all the preparations is another important point of consideration.

With very rare exceptions therefore, and such as must happen in regard to every active medicine, I have as much cause to be satisfied with all the effects, as with the efficacy of the iodine inhalation; and when the disease has not proceeded too far for cure, the patient expresses his daily approbation of the remedy, from the sensible benefit which it produces; not only in regard to the lungs and air passages, but to the digestive functions, and consequently to the whole system.

I have had much less reason to think highly of the curative agency of chlorine inhalation, than others who have reported of its effects; but I consider it to be next in utility to iodine, and much approve of its occasional employment, during the course of the iodine inhalation, if only on the principle of changing the stimulus; and certainly, therefore, when there

may seem any just cause to call in question the operation of the iodine, in any particular case.

Chlorine, from its great volatility, comes over so quickly with the aqueous vapor, that the total quantity used at each inhalation should be partitioned into doses; and I commonly begin with six minims of the pure aqueous solution, renewing this quantity every three or four minutes. Eighteen minims is the smallest total quantity to which I have limited myself for each process; sixty, the largest which I have ever directed. If it irritate the air passages inconveniently, I add the tincture of conium; but this must always be done at the time of using the inhalation; for, otherwise, the chlorine would be too much weakened by decomposition. The most favorable temperature of the water is, according to my experience, 110°.

Those who are desirous of receiving more information than I have given respecting the inhalation of chlorine, as a remedy in tubercular phthisis, may with advantage consult the

Memoirs of M. Gannal, published in France, and translated by Mr. Potter, a scientific chemist in Old Compton Street. I shall be happy to learn that the highly favorable report of M. Gannal becomes supported by the testimony of others: for it is indeed most desirable to increase the list of really useful remedies, in a disease so melancholy in its consequences as Phthisis pulmonalis.

It is one of the advantages of inhaling which deserves to be mentioned, that the practice of it sensibly improves the respiratory powers. The patient should be instructed to inspire as freely as he can do without inconvenience, in order that the vapor may traverse the air passages further, and be more effectual; but, at the same time, never to distress and fatigue the chest by effort; and if, at the end of eight or ten minutes, such fatigue should be experienced, to discontinue it. The task will soon become easy; and I can truly say that most patients anticipate the hour of inhaling, with pleasure. In general it can be used before

breakfast without inconvenience ; as the second period, I recommend between luncheon and dinner ; and for the third time, in the evening. The patient should avoid going into the atmosphere till after the interval of an hour from the inhaling, unless it be summer weather.

Simple as the plan may possibly appear to the reader, from my representation, I would strongly caution invalids not to attempt the treatment without medical advice. In various ways it requires to be modified ; and I may here repeat what I have before said, that internal treatment and general management should be joined with the plan of inhalation ; embracing the several considerations of the administration of medicine, the regulation of the diet, the temperature of the apartments, the place of residence, the kind and extent of exercise, the clothing, and the state of the mind ; as far as that delicate, but very powerful influence is within our controul.

Finally, early attention to the incipient signs of disease is of great importance. In

many instances of threatening tubercular mischief, I have succeeded in removing the symptoms by a moderate course of the iodine inhalation. These have been cases in which the symptoms gave rise to increased anxiety, in consequence of consumption having been very fatal in the families of the respective invalids.

In bringing this Treatise to a conclusion, I must express my hope, that the method of practice, which it has been the object of these pages to recommend, may receive from the Profession a testimony to its merits concurrent with my own. That which has only the semblance of truth will, meteor-like, pass away ; but truth itself must ever remain upon its basis, firm and unshaken.

THE END.

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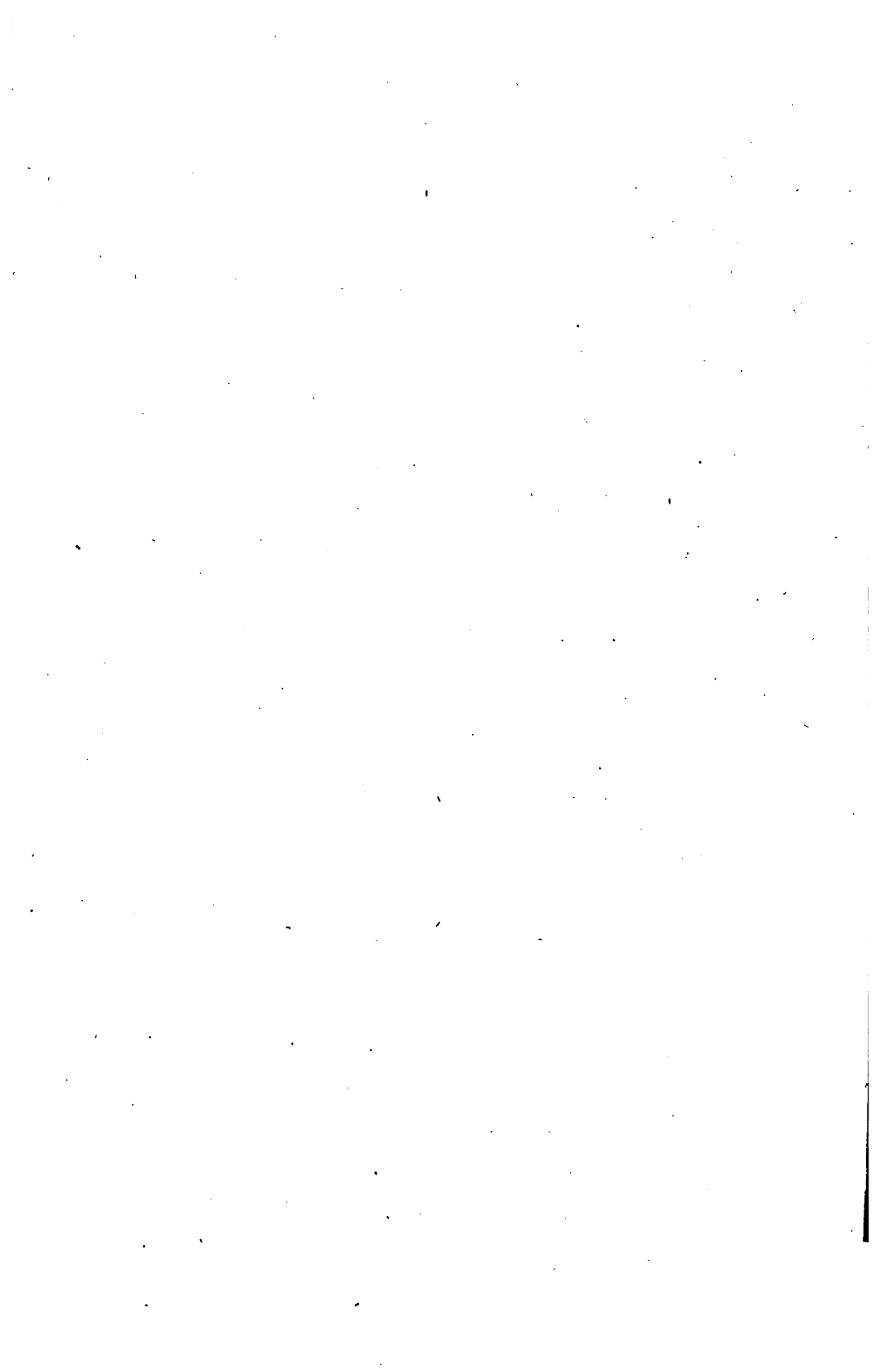
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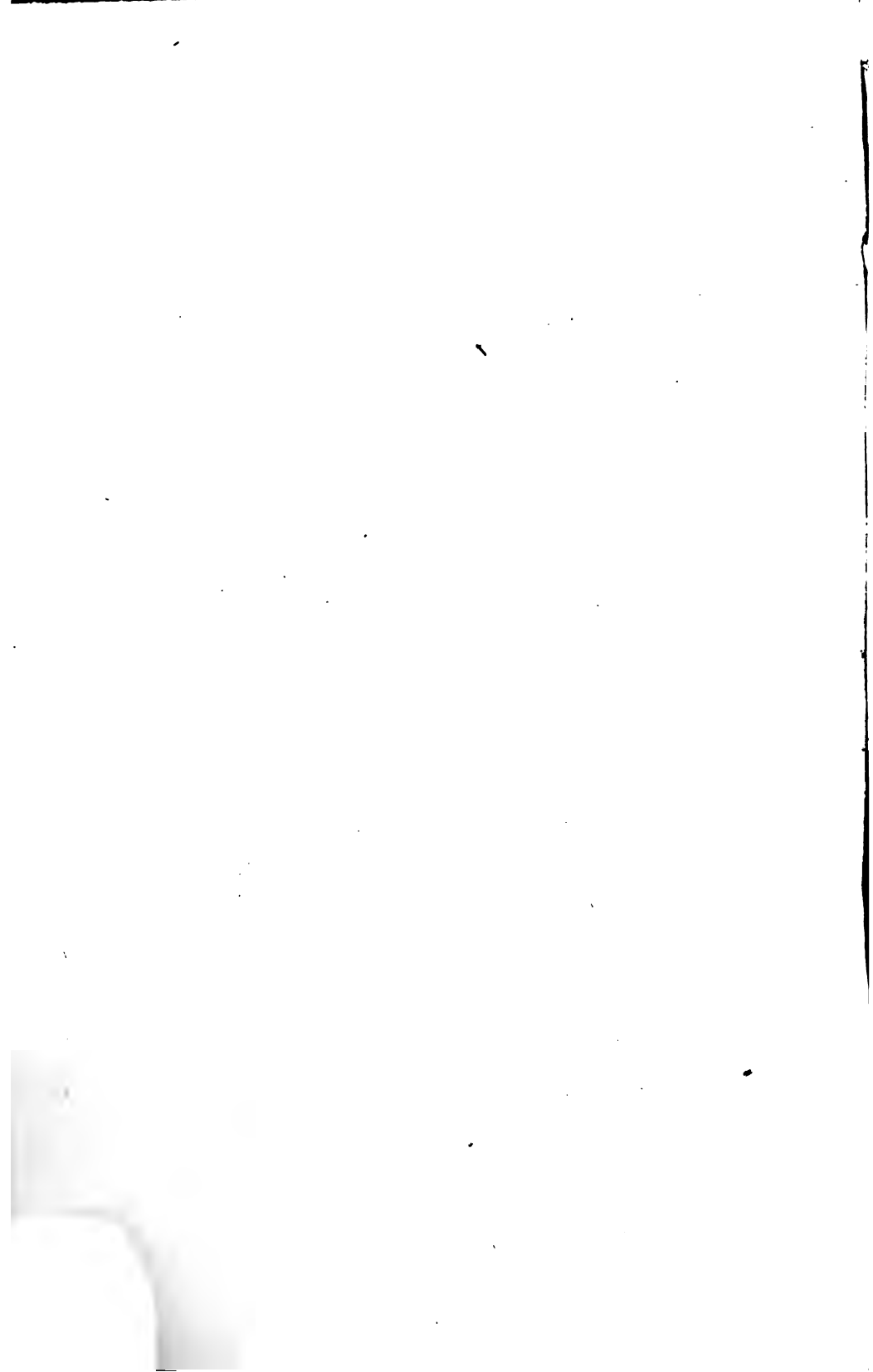
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